



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

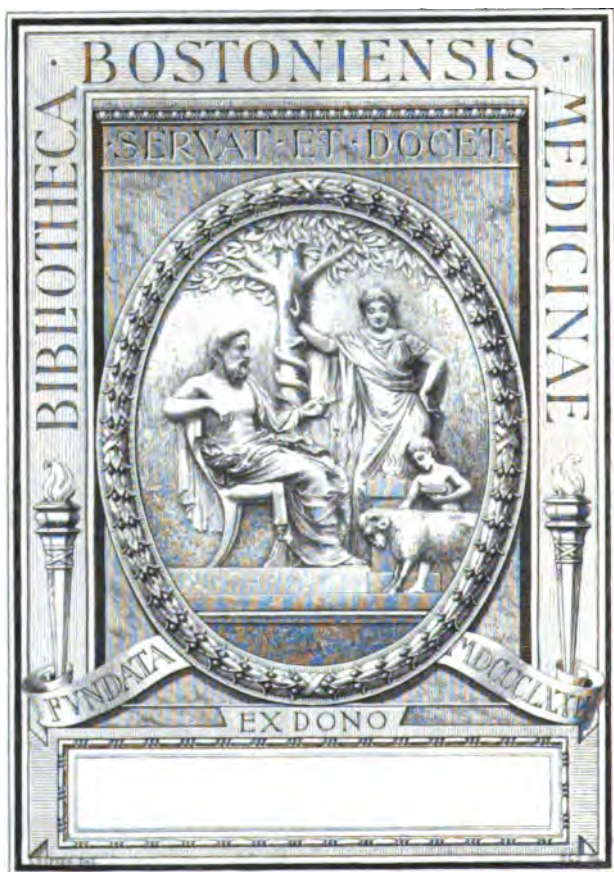
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>









BULLETIN

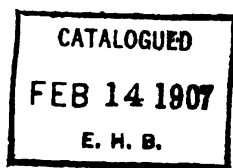
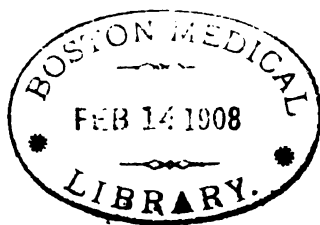
OF THE

American Academy of Medicine.

VOLUME VII.

JUNE, 1905 TO DECEMBER, 1906.

EASTON, PA.:
ESCHENBACH PRINTING CO.,
1906.





9935

BULLETIN

OF THE

American Academy of Medicine.

VOL. VII.

ISSUED JUNE, 1905.

No. I.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or address published in the BULLETIN.

REPORT OF THE COMMITTEE ON THE TEACHING OF HYGIENE IN PUBLIC SCHOOLS.¹

PLAN OF WORK.

To the American Academy of Medicine:

Your committee to investigate the teaching of hygiene in public schools finds five chief methods—disassociated in the curriculum—by which public schools are directly teaching personal, domestic and public hygiene, including physiology and anatomy. The committee will not consider in detail the school environment and customs indirectly influencing pupils' standards of hygiene.

The direct methods are:

1. "Domestic science," including cookery, foods and nutrition; sewing, materials, and dressing; care of the house and of the sick; emergencies.
2. Physical training, including gymnastics, play and athletics, and various physical habits.
3. Biology ("nature study") and "science teaching," showing conditions, phenomena, and processes of physical life.
4. Medical inspection, teaching prevention of ill-health, personal, domestic, public.
5. Physiology and hygiene, with special reference to the nature and effects of alcoholic drinks and narcotics upon the human system.
6. Several sporadic methods.

With one exception this teaching is by the "laboratory method,"

¹ At the annual meeting, June, 1903, the following was voted: "Resolved, That the president appoint a committee of three to investigate the teaching of hygiene in our public schools, and to report to the Academy at its next meeting."

The president, Dr. McIntire, appointed accordingly Dr. Helen C. Putnam, of Providence, Rhode Island, Dr. Edward Jackson, of Denver, Colorado, and Dr. George G. Groff, of Lewisburg, Pennsylvania.

This first report was presented to the American Academy of Medicine at Atlantic City, June 6, 1904.

i. e., practice is the essential feature, less or no time being given to text-books. "Scientific temperance instruction" (the name used by the progenitors of the fifth method) is chiefly by text-book, less or no time being given to demonstration.

The members of the committee have given to this work all the attention possible to spare from other duties. They submit herewith their studies of two features of the fifth method: one a study of the laws regulating the teaching of physiology and hygiene, the other a study of "indorsed" physiologies and others.

It is hoped that further time will be allowed to report on all the methods indicated; and, *when the facts have been presented, to consider in a final summing up such conclusions as these facts warrant.*

HELEN C. PUTNAM,
EDWARD JACKSON,
GEORGE G. GROFF,
Committee.

FIRST SECTION: STUDIES OF LAWS AND OF TEXT-BOOKS.

A Study of the Laws in the United States on Teaching Physiology and Hygiene in Public Schools.

All laws relating to the teaching of physiology and hygiene in our public schools¹ have been secured for the purpose of "scientific temperance instruction," and are best appreciated when studied as an evolution.

The first, in Vermont, 1882,² simply enumerated among the other

¹ These laws as existing in 1903, compiled by the committee, are published as a preliminary report in the Bulletin, April, 1904.

² An Act relating to the study of physiology and hygiene in the public schools.

It is hereby enacted by the General Assembly of the State of Vermont:

Sec. 1. Section five hundred and fifty-eight, chapter thirty-three, of the revised laws is hereby amended so as to read as follows:

One or more schools shall be maintained in each town for the instruction of the young in good behavior, reading, writing, spelling, English grammar, geography, arithmetic, free-hand drawing, history and constitution of the United States, and elementary physiology and hygiene which shall give special prominence to the effects of stimulants and narcotics upon the human system; and special instruction shall be given in the geography and history, constitution and principles of government of Vermont. Text-book committees shall select and recommend a text book on elementary physiology and hygiene for use in their respective towns.

Sec. 2. No teacher shall be required to pass an examination in physiology and hygiene before November 1, 1883.

Approved November 13, 1882.

subjects to be taught "elementary physiology and hygiene which shall give special prominence to the effects of stimulants and narcotics upon the human system," provided for the examination of teachers in this as in other subjects, and for a text-book on merely physiology and hygiene chosen as were other text-books. The object was and has always been to incorporate this in the child's education as thoroughly as, *e. g.*, arithmetic. That law did not accomplish this object. It might even be satisfied with a few talks to a few pupils in one school.

From this beginning has developed the present legislation throughout the country.

INFLUENCES IN THE EVOLUTION.

Three influences are specially distinguished in the evolution of these laws: 1, The schools; 2, certain business interests; 3, the Woman's Christian Temperance Union.

1. *The schools.*—Physiology and anatomy (hygiene was less considered) before 1882 were looked at askance by most teachers, and by most parents as well, as an uninteresting, unfit and embarrassing, possibly dangerous, subject, especially for children. It had been irregularly taught in comparatively few schools. There were no text-books adapted to children of different ages, and none containing instruction relating to the "effects of alcoholic drinks and narcotics upon the human system." The teaching of natural and physical sciences had not been undertaken by the very great majority of teachers.

Therefore most school officials were indifferent or passively opposed to these laws, and instructors unprepared for the subjects.

2. *Certain business interests.*—The large classes whose business interests and whose pleasures are antagonized by such instruction have actively obstructed this legislation through politicians and the ballot, through the press (pre-eminently) and through their many channels of influence in communities, on local boards, etc.

3. *The Woman's Christian Temperance Union.*—A nucleus of patriotic, capable, reverent women, associating with themselves professional men and women of good standing in the law, the ministry, medicine, science and education, have organized and directed public sentiment among the home-makers, the intelli-

gent and law-abiding throughout the great territory of the United States, and in twenty years have accomplished the evolution of these laws to their present stage, and secured a fair degree of enforcement—a much more difficult task.

Besides the opposition of certain business interests, the chief that has been influential has been recently raised in three eastern states, mainly by certain educators, many of whom belong to scientific societies.

In New York, 1896, a movement led by some of the teachers secured slight modifications of no particular moment in the law of 1895, resulting in the existing law. Criticism of this law continues.

In Massachusetts, 1899, educators prevented the addition of several features found in these laws elsewhere designed to secure their stricter enforcement.

In Connecticut, 1901, educators secured the removal of several such features from the stringent law of 1893, the present one resulting.

CHRONOLOGY OF ORIGINAL LAWS.

The original laws were enacted in the following chronological order. Many of them were amended afterwards.

- 1882 Vermont.
- 1883 Michigan, New Hampshire.
- 1884 New York, Rhode Island.
- 1885 Alabama, Kansas, Maine, Massachusetts, Missouri, Nebraska, Nevada, Oregon, Pennsylvania, Wisconsin.
- 1886 Congress (Territories, District of Columbia, National Schools), Connecticut, Iowa, Maryland.
- 1887 California, Colorado, Delaware, Minnesota, West Virginia.
- 1888 Louisiana, Ohio.
- 1889 Florida, Illinois, Montana.¹
- 1890 North¹ and South Dakota,¹ Idaho,¹ Washington,¹ Wyoming.¹
- 1891 North Carolina.
- 1892 Mississippi.
- 1893 Kentucky, Texas.
- 1894 New Jersey, South Carolina.
- 1895 Indiana, Tennessee.
- 1897 Utah.¹
- 1899 Arkansas.
- 1900 Virginia.
- 1901 Georgia.

¹ Had a law previously as a territory under the law of Congress, 1886.

STEPS IN EVOLUTION OF LAWS.

The main features of these laws made their first appearances as the necessity for each was believed to be demonstrated. The trend of the evolution has been toward accuracy of expression, and addition of details to cover weak points through which the intention of previous laws had been evaded.

The list is full of significances as well as of history.

- 1882 "Physiology and hygiene which shall give special prominence to the effects of stimulants and narcotics upon the human system;"
Teachers' examinations (as in other branches);
Text-books (selected by regular text-book committee). *Vermont.*
- 1883 "With special reference to the effects of alcoholic drinks, stimulants and narcotics upon the human system." *Michigan and New Hampshire.*
Instruction for "all pupils in all schools;"
Approval of text-books (chosen by local board) by state board of education (and state board of health—only by Wisconsin afterward). *Michigan.*
- 1884 "All schools supported wholly or in part by public money or under state control." *New York.*
- 1885 Temperance instruction "in each division of the subjects of physiology and hygiene." *Pennsylvania, Massachusetts.*
To be studied "as a regular branch." *Pennsylvania.*
To be taught "above the primary grade." *Nevada.*
Public schools "and all educational institutions supported wholly or in part by public money or under state control." *Pennsylvania; Alabama* mentions colleges.
Enforcement of law specifically assigned. *Alabama, Massachusetts, Pennsylvania.*
Special reports required and special penalties for neglect indicated. *Pennsylvania.*
- 1886 "Nature of alcoholic drinks and narcotics and their effects upon the human system." *Congress, Vermont.*
Oral instruction to non-readers;
"As thoroughly as geography and arithmetic." *Vermont.*
Text-books "in the hands of pupils." *Congress.*
Space in text-books specified for scientific temperance instruction. *Vermont.*
To be taught in teachers' institutes, normal classes, state charitable institutions. *Iowa.*
- 1888 Orally from "text-books in the hands of teachers" to those not able to read. *Louisiana.*
- 1890 Length and number of lessons specified. *North Dakota.*
- 1894 Graded text-books specified;
Examinations of pupils specified. *New Jersey.*

- 1896 "The nature and effects of alcoholic drinks and other narcotics;"
 Minimum number and length of lessons;
 To be taught below second year of high school;
 Examinations for promotion required. *New York.*
 1897 Orally only in first three years of primary grade. *New York.*

The last three laws in this evolution, Illinois 1899, Virginia 1900, Georgia 1901, use the phrase "alcohol," or "alcoholic drinks," "and *other narcotics.*"

It would be interesting to recite some of the circumstances demonstrating the need of these additions to, or alterations in, the original simple law. Many can be surmised by all who have had any experience with political methods.

Without discussing the wisdom of this legislation, one may recall that the results of indifference and inadequacy in the schools, of political, commercial and social hostility, of luke-warm and antagonistic scientists and physicians, were to be overcome by this legislation, as well as text-books evolved, and teachers prepared. Such a chronology testifies to a large constituency, faithful persistence, intelligent observation, and executive resourcefulness.

EXTENT OF LEGISLATION ACCOMPLISHED.

The extent to which this legislation has been accomplished must be ascertained to help answer the question: Do existing laws favor or hinder the development of the teaching of hygiene?

The present laws cover all the continental possessions of the United States, including Alaska and excepting the Isthmian Canal zone; and also Hawaii and Porto Rico.

The reader is referred to Appendix A¹ for further details of the following statements that briefly analyze the laws of forty-five states and the National law of Congress.

(1) *Where is the teaching of physiology and hygiene, including "scientific temperance," mandatory?*

Twenty-three state laws specify all public schools.

Twenty-two state laws specify all schools supported wholly or in part by public money or under state control. Query: How often is this interpreted to mean schools having special charters from the state?

Michigan specifies schools having special charters. Massachusetts specifies private day schools, except those solely for instruction in special branches.

¹ Page 32.

Seven laws specify in addition *all educational institutions* aided by state funds or under state control: Indiana, Maryland, Minnesota, Ohio, Pennsylvania, Utah, Wyoming; and Alabama specifies colleges so supported. Query: What states enforce this law literally?

The educational institutions besides public schools receiving state aid or under state control are state universities, colleges and normal schools; certain institutions for study of special subjects; schools for defectives (blind, crippled, deaf-mute, feeble-minded); schools for the neglected, destitute and incorrigible; schools in reformatory and penal institutions. "Under state control" is not generally understood to mean schools having special (private) charters.

Four laws specify normal schools, teachers' training classes and institutes; and three specify reformatory or state charitable institutions. Many states so interpret their laws.

Congress specifies all public schools (including Indian and colored) in the territories and District of Columbia, and military and naval academies.

(2) *What pupils in said schools shall receive instruction in physiology and hygiene, including "scientific temperance?"*

Twenty-three laws specify "all pupils," this being often interpreted to mean "all pupils sufficiently advanced in age and scholarship." This interpretation has frequently proved too elastic, and therefore certain more definite provisions are occasionally made.

Fourteen laws do not specify what pupils.

Nine laws have varying specifications, as "in all grades, in all classes, during entire school course" (California, oral); all pupils above third grade and below high school; all pupils below second year of high school; "as far as practicable;" above second primary grade.

The undoubted tendency is to legislate "scientific temperance instruction" into grammar and primary grades, discontinuing it with the second year of high school, this for the obvious reason that only two million pupils go on to high school, out of the fifteen and a half millions in elementary grades, or one-twentieth of the primary entering class. Another million children are

in private schools, about half of them parochial. This legislation does not usually apply to them. Five million of school age (5 to 18 years) are not enrolled in schools (although many may have been). The average number of days attendance is 100. The average daily attendance is 11,000,000. The general statement that instruction in physiology and hygiene including "scientific temperance" can hardly be of any value to one-quarter of our 22,000,000 children of school age, and they of the poorest classes, is a conservative estimate. It should be borne in mind in any study of the results of this teaching upon "the masses." One needs to remember also that we have over 6,000,000 illiterates above 10 years of age.

(3) *Shall teachers qualify for this as for other studies?*

Thirty laws specify examinations of teachers in this branch as in others, Idaho excepting primary teachers; New Jersey, teachers of music, drawing, manual training, etc. Congress does not mention the examination of teachers in military and naval schools. The remaining 15 states have the general school law specifying satisfactory examinations in all subjects required by law to be taught.

(4) *By what method and how thoroughly shall physiology and hygiene, including "scientific temperance," be taught?*

California and Indiana require oral instruction only in any grade.

Nine laws specify "text-books in the hands of pupils."

Nine laws specify oral instruction for those unable to read, and text-books in the hands of reading pupils.

Twenty-five laws specify that the instruction must be as thorough as in any other subject required by law.

Fourteen laws make no specification as to method or quality of instruction.

(5) *Fourteen laws have specifications concerning the text-books to be used.*

Eight of them specify their approval by certain authorities, as, e. g., the board of directors of the school district, the state board of education, the state superintendent of public instruction and presidents of normal schools, the state superintendents of education and of health.

That the high school text-books on physiology and hygiene shall

give at least 20 pages to scientific temperance is required by the laws of Illinois, Michigan, New York and North Carolina. Below the high-school grade Michigan and North Carolina require one-fourth of the number of pages to be given to this special subject; Illinois and New York require one-fifth; New Jersey requires "space for full and adequate instruction" in temperance.

Reasons for the above specifications are more evident than for the following: Illinois and New York specify that the pages in a separate chapter at the end of the book shall not be counted in this minimum; and 14 laws specify that scientific temperance instruction shall be given "in connection with the several divisions of the subjects of physiology and hygiene." The explanation of these specifications given is a matter of history. In 1884, after Vermont, New Hampshire, Michigan and New York had passed their first laws, publishers of school text-books put upon the market new editions of the old ungraded physiologies with a chapter containing "a little temperance matter" added at the end of the book "where the pupil would rarely reach it," perhaps adapted from an encyclopaedia, certainly not graded to pupils' understanding. In 1885 Pennsylvania and Massachusetts passed the first laws requiring temperance instruction "in each division of the subject of physiology and hygiene," thus discriminating against books with temperance appendices.

Here began the evolution of graded text-books in physiology and hygiene, and also, incidentally, the antagonism of many publishers and of some authors, although no state definitely specified graded text-books until New Jersey in 1894. The present laws of Illinois and New York specify further that they shall be graded to the capacities of pupils of the fourth year (highest primary), intermediate (first two years of grammar), grammar and high schools.

Political "jobbing" in school supplies is well known. Therefore many states have more or less detailed laws regulating the sale of school-books; conditions of "bids" by commercial houses and of bonds to be given; option of new editions and terms of exchange for old; prepayment of postage and expressage; penalties, etc. Such laws affect these in common with other text-books.

(6) *Three states have specifications concerning the length and number of lessons in physiology and hygiene.*

North Dakota has a minimum for oral instruction to those unable to read; at least fifteen minutes daily, four days each week. This means an hour's weekly instruction *in hygiene* and temperance, *i. e.*, a possible twenty-four hours yearly, the minimum school year being six months.

Illinois and New York in the lowest three primary grades (corresponding to the class for oral instruction in North Dakota) require respectively 3 and 2 lessons each week, each year. If these are 15 minutes long they amount to seven and a half hours and five hours oral instruction yearly for three years.

Illinois and New York require for text-book instruction 4 and 3 lessons weekly respectively for 10 weeks each year from the fourth primary year to the second year in high school. Text-book lessons are usually 20 minutes. This amounts therefore to a minimum of $13\frac{1}{2}$ and 10 hours yearly for six years—somewhat less for eleven-twelfths of the pupils.

No other laws specify as to these points, the time and number of lessons in hygiene being left to local authorities. Some teachers believe a short weekly or other occasional lesson throughout the year more impressive than short daily or frequent lessons for one term.

(7) *That pupils must pass the same tests for promotion* in this as in other studies is specified by Illinois, Iowa, Ohio and New York (where physiology and hygiene, including temperance, are a part of "regent's examinations").

(8) *Enforcement of laws.*

It is common experience that a good law on any matter is frequently ineffective because its enforcement is not provided for. The *duty* of enforcement must be definitely placed, the *method* of enforcement detailed, the *penalty* for non-enforcement indicated, and provision for complainants is sometimes made. In the legislation under discussion experience often proved it necessary to make special regulations.

The duty of enforcing these laws is specifically assigned by 31 states, usually to certain local school authorities, occasionally adding the state superintendent or county board.

(9) *Reports and penalties.*

Special reports from special sources are stipulated by 13 of

these 31 states. They may be from teacher or other local official, or from any citizen or head of family, to some local or state official, or by the state superintendent in his annual report to the public. The report is frequently made to the official who pays out school money.

Penalties for non-enforcement of laws are specially mentioned by 19 of these states. They vary from removal of any guilty official from office, or revocation of teacher's certificate temporarily or otherwise, to loss of salary, or fines from \$5 to \$200 against any guilty official, or loss of all or part of state appropriation to school, city or district.

Delaware and Washington specify the officer of the law who shall recover the fines. Ohio and Washington specify what shall be done with said fines.

In states where no special mention is made of the enforcement of this law there is the general school law requiring teachers' compliance, subject to dismissal, etc.

OBSERVATIONS.

1. *No law states what shall be taught as to the nature and effects of alcoholic drinks and narcotics upon the human system; nor that total abstinence shall be taught.*

2. *No law prevents the teaching of temperance from an economic, moral, sociologic, or other view-point than physiologic.*

3. *No law prevents the teaching of hygiene through "domestic science," physical training, biology, medical inspection, or in other ways.*

4. *No law requires indorsement of text-books by the Woman's Christian Temperance Union.*

5. *Forty-two laws do not stipulate the space for temperance in text-books on hygiene; 43 laws do not specify number and length of lessons in hygiene (including temperance).*

In other words:

These laws leave ample openings for other text-books, methods, teachings, to any interested in hygiene (including temperance for physiologic reasons) who *have the capacity* to take advantage of such openings to demonstrate better ideas.

INDORSEMENT OF TEXT-BOOKS.

The explanation of the fact that many text-books on physiology

and hygiene are indorsed by the text-book committee of the Woman's Christian Temperance Union is given approximately as follows:¹

In 1885 five state laws having been enacted, Miss Frances E. Willard, president of the Woman's Christian Temperance Union, in reply to the question, published the statement that "any indorsement of scientific text-books for the temperance education contemplated by Mrs. Hunt's department must have her signature to be *satisfactory to the National W. C. T. U.* (Italics are ours.) No law required an indorsement. No law mentioned this organization.

This year the first text-books appeared indorsed by the Woman's Christian Temperance Union.

Two years later, 1887, a petition to publishers of text-books was issued, with over 200 signatures of distinguished statesmen, doctors of divinity and medicine, scientists, educators, members of boards of health, presidents of colleges, editors, etc. This petition is of special interest because it was promptly adopted by the Woman's Christian Temperance Union as its *standard for school physiologies*.

After enumerating criticisms upon publications which the Union refused to indorse, the petition continues:

Therefore the undersigned . . . do make respectful and earnest appeal to all publishers of text-books on this subject *to revise their publications to conform to the latest results of scientific enquiry*,² and to meet the term and spirit of these statutes in making the temperance matter the chief and not the subordinate topic in these books, *so that public and authorized expressions of approval and indorsement of all such books can be issued and given wide circulation.*

In urging this appeal we beg leave to represent that if this new education is to give the world a coming generation of total abstainers, as we expect, its manuals of instruction must conform to the following specifications:

1st. They must teach with no uncertain sound the proven findings of science, *vis.*:

(a) That alcohol is a dangerous and seductive poison.

(b) That beer, wine and cider contain this same alcohol, thus making them dangerous drinks, to be avoided, and that they are products of a fermentation *that changes a food to a poison.*³

¹ By Mrs. Mary H. Hunt, Life Member of the National Education Association, World's and National Superintendent of Scientific Temperance Instruction of the W. C. T. U., in *An Epoch of the Nineteenth Century*, 1897.

² All italics in this petition are ours.—*Com.*

³ Among the common people since ancient times the following syllogism has obtained: Grain is food. Beer and waste come from the grain. There is no food in the waste; therefore it must be in the beer. Beer is liquid bread.

(c) That it is the nature of any liquor containing alcohol to create an appetite for more, which is *so apt* to become uncontrollable that the strongest warning should be urged against taking that little and thus forming the appetite.

2d. They must teach also the effect of these upon the human system, that is, upon the whole being—mental, moral and physical. The appalling effects of drinking habits upon the citizenship of the nation, the degradation and crime resulting, demand that instruction here should give clear and emphatic utterance to the solemn *warnings of science* on this subject.

3d. This instruction must be as well graded to the capacities of each class of pupils as the modern school readers are. A book fit for high schools put into primary or intermediate classes will make the study a failure there. Truth is just as true and as scientific when told in easy words as when put into skilled technicalities the child cannot understand.

4th. This is not a physiological but a temperance movement. In all grades below the high school this instruction should contain only physiology enough to make the hygiene of temperance and *other laws of health* intelligible. Temperance should be the chief and not the subordinate topic, and should occupy at least one-fourth the space in text-books for these grades. As only a small portion of the pupils in our public schools attend high schools, and vast numbers leave with the primary, this instruction should be early and ample. It is not desirable to have a separate book for the physiology heretofore studied in the high school or to limit the amount, but at least twenty pages out of that ordinarily required should be given to the question of the danger of alcoholic drinks and other narcotics, in a text-book for these classes.

5th. This effort to disabuse the minds of the rising generation of fallacies which lead to *drink habits* should purposely avoid reference to the *medical* use of alcohol, except to state that as by common consent *its lay prescription is condemned*, the question of its use as a remedy may properly be relegated to *medical treatises, as out of place and misleading in a school text-book*.

Lacking in any of these points, a text-book on scientific temperance is incomplete, and the use in the schools of such a book will not result in a strong temperance sentiment among the pupils using it.

Because the question of total abstinence for the children of this country, and therefore of their well-being and that of the land soon to be governed by them, depends so largely upon the teachings in these books, we make this appeal.

This standard for text-books omits many aspects of hygiene. Its intentness upon alcoholic and narcotic habits, and its statement that "temperance should be the chief and not the subordinate topic" was at that time felt necessary in order to impress publishers who were *bent upon another course*.

That statement seems unreasonable now with our present familiarity with the ideas thus launched of teaching hygiene based on the latest science, of text-books in hygiene graded from primary

to high school, and of temperance instruction. That it was not meant literally 20 years ago is shown by the accompanying statements that only 20 pages of high-school text-books, *i. e.*, one-fifteenth or one-twentieth of their space should be given to temperance, and one-fourth of text-books for lower grades, leaving a generous "chief" portion for instruction in other hygiene.

This standard was another step toward securing the spirit as well as letter of the new laws, and the topics of physiology and hygiene, as well as temperance, since 1882 have received more attention than authors and publishers (or even the medical profession) ever before gave them, with special reference to the preparation of text-books for all ages, having accurate and practical contents.

Soon after 1887 a committee was chosen, from the signers of this petition, to examine and indorse books which the *Woman's Christian Temperance Union* could recommend. Publishers, with an eye to sales, requested this committee to allow the printing of this indorsement in the books. No money has ever been asked or received for this indorsement, it is stated.

Thus we find that by the local influence of hundreds of thousands of members of the Woman's Christian Temperance Union, exerted on school authorities, the majority of physiologies now in use bear its indorsement. If the American Medical Association should indorse other books conforming to the legal requirements of a state, and should in that state exert greater influence upon public and official sentiment, according to the law of force, it must prevail. It is a question of influence, not of law.

A Study of Common School Text-books in Physiology and Hygiene, 1883-1904.

The text-books like the laws can be more intelligently appreciated if examined as an evolution.

Appendix B, page 40, gives the titles of 73 text-books on physiology and hygiene published since 1882 for pupils in high and elementary schools: 35 "indorsed," 35 not indorsed, and 3 laboratory books. There are also 22 revised editions, 16 indorsed and 6 not, making a total of 93¹ volumes examined. The list contains all indorsed books; but not all others published in the

¹ Two revisions are also counted as "books," the first editions not having been seen.

22 years, and includes all found in eight of the best New England collections.¹

INDORSED PHYSIOLOGIES.

That the majority of text-books used bear the indorsement of the Text-book Committee of the Woman's Christian Temperance Union has been discussed in the pages immediately preceding.

Of the 35 indorsed physiologies there are 10 series graded for different ages, and two single books for high schools.² Three series contain 2 volumes each ; 3 contain 3 volumes each ; 2 series contain 4, and 2 others contain 5 volumes each. Of this last group is the "New Century Series," just issued. After a brief glance over the evolution it will be instructive to discuss this series, the latest phase of the evolution and supposedly its best.

The Evolution.

The title of the first series (1885) is suggestive of the spirit in which it was ventured,—“Pathfinder Series.” It recalls to mind that from the days of Horace Mann, and to a less degree during a half century before, there had been desultory efforts to have hygiene taught in common schools, accompanied by practically unanimous dissatisfaction with text-books. The literature of the times gives us some of the reasons for this dissatisfaction.

1. The books had too much anatomy particularly ; also too much physiology, and very little or no hygiene.

2. They were too technical even for pupils in academies, and savored too much of the profession of medicine.

3. They were wholly unadapted to the great majority of children in elementary grades.

4. Another criticism appearing shortly before the first laws was that illustrations and experiments were lacking, and that scientific statements mean little to the pupil. It was partly in response to this that a few zealous instructors aroused the disapprobation not only of anti-vivisectionists but of the majority of thinking men and women.

5. Some writers had courage to assert that teachers were not well enough informed to handle the subject properly.

¹ Two private libraries, and those of Harvard and Brown Universities, the libraries of the public school departments (including normal schools) of Boston and Providence, also their two public libraries.

² See Appendix C, page 57.

For these and other reasons many argued—there are hosts of parallel non sequiturs—that children cannot be taught physiology and hygiene. The idea is not yet wholly outgrown.

This lack of text-books, and of instructors trained for this teaching, together with general public indifference, maintained a vicious circle of inefficiency, from which the first indorsed series of four graded volumes was radical departure to find a path by which the truths of science can be adapted to children's minds; in which hygiene shall have a larger share, and in which temperance shall be taught on a physiologic basis.

The volumes for primary, intermediate, and higher grammar grades were anonymous and were distinctly experiments. Four such books attempted during the preceding half century had proved quite "impossible." The voucher for the intermediate volume was Professor Palmer, Doctor of Laws and of Medicine, Dean of the Medical Department of the University of Michigan.

The author of the high school volume was Joel Dorman Steele, Doctor of Philosophy, a progressive educator whose numerous text-books had done more than any others at that time to popularize history and science. Some of them in revised editions are still in the schools; and the Federal government, as well as a few school authorities in the states, continue his physiology.

From this to the "New Century Series," through the several series and their revisions, progressive features are noted whose evolution was due to various influences, chiefly the growth of hygiene itself, the criticisms of teachers, physicians and scientists, and the committee of indorsement representing a definite public demand.

To be judged by the best.

The teaching of hygiene and temperance on a physiologic basis should not be judged by averages alone. Too many factors of politics, commercialism, society, pedagogy, and individualities create these averages. Such factors should be estimated in any study of the institution.

Also, in this subject at this period, averages cannot be ascertained with sufficient degree of accuracy to have weight, particularly if made up from a mass of personal opinions. Two commit-

tees "investigating" by circular requests for opinions have actually reported opposite results.

To estimate "indorsed" text-books as one factor in teaching hygiene one must examine the best produced as fairly indicating the aim. If manifestly inferior, one's work is done. These books or methods are not all we need.

If this plan for teaching hygiene, tried by its best, promises well, we can examine further to discover and remedy hindrances and to improve averages.

Pupils in the various grades.

The proportions of pupils who are reached by the various grades of books are suggested by the following figures for 1901-2. There are few recent statistics more pitiful than these of discontinuing school.

	Age.	Attendance.	Approximate ¹ loss at end.
Primary :			
First grade.....	5-6	5,149,296	2,236,834
Second grade.....	6-7	2,912,462	486,199
Third "	7-8	2,426,263	257,307
Fourth "	8-9	2,168,956	880,842
Total		12,656,977	3,861,182
Grammar :			
Fifth grade.....	9-10	1,288,114	587,229
Sixth "	10-11	700,885	295,192
Seventh grade.....	11-12	405,693	82,086
Eighth "	12-13	323,607	80,174
Total		2,718,299	1,044,681
Elementary, total ...		15,375,276	4,905,863
High :			
Ninth grade... ..	13-14	243,433	96,241
Tenth "	14-15	147,192	35,298
Eleventh grade.....	15-16	101,903	28,307
Twelfth "	16-17	73,596	
Total.....		566,124	159,837

The hopeful feature is that each decade shows a good increase in the percentage of pupils who remain for higher grades.

The latest series.

The committee presents for your examination two small exhibits of text-books.

¹ The differences between these grades are approximately the differences between each and its preceding grade in 1901 of which it is a survival, or its succeeding grade in 1903 which survives this.

One exhibit is of the best five "school" books in use 22 years ago¹—all for high schools (or colleges). This was just before organized effort was directed to the development of children's text-books in hygiene.

The other exhibit is of the "New Century" series in five graded volumes, issued in 1902.

The alterations in content you will find consistent with our quarter century's progress in science and in the arts of teaching. They can be paralleled by changes in our medical text-books, *e. g.*, in the first edition of Osler's "Practice," 1892, compared with the fourth and latest edition of 1902, a period of only 10 years.

In form we must admit that evolution is improvement. We note the light little volumes for little hands; the artistic illustrations appealing to childish interests; the clear type and its helpful arrangements in convenient sections of questions *résumés*, experiments, glossary and index; all these features *graded to different ages*, and particularly complete in the high school volume.

Its high school volume.

The high school volume of this latest series has 262 pages of text. To anatomy and physiology is given 135 pages; and 127 pages (nearly one-half) is given to hygiene, 27 of them being for temperance instruction. The best of these old books has hardly one-sixth given to hygiene.

The 100 pages of common hygiene in each related division of anatomy and physiology touch upon hygiene of the skeleton, having excellent pages devoted to habits; hygiene of the muscular system with excellent discussion of exercise, "the real ends of which are mental and spiritual perfection;" hygiene of digestive organs, with many warnings concerning other evils than those of alcohol; hygiene of circulation, including "taking cold" (sometimes due to micro-organisms), the germicidal power of healthy blood, leucocytosis and phagocytes; hygiene of respiration, particularly practical on ventilation; hygiene of the excretory organs, care of skin, hair, nails, particularly good on constipation; the disposal of excretions, contamination of water, milk,

¹ Cutter's "First Book of Anatomy, Physiology and Hygiene," 1872; Martindale's "Anatomy, Physiology and Hygiene," 1872; Hooker's "New Physiology," 1882; Hutchison's "Physiology and Hygiene," 1870; Martin's "Human Body," 1881.

and food ; contagions, antitoxines, disinfectants, and communicable diseases briefly, including a copy of the Michigan board of health circular to public schools entitled " Dangerous Communicable Diseases in the order of their importance, modes by which they are spread, and best methods for their restriction and prevention." It mentions consumption, pneumonia, influenza, diphtheria, typhoid and scarlet fevers, measles, small-pox, cholera.

The book also touches on hygiene of the nervous system, and of the eye, ear, and voice ; the value of play and athletics ; and one good section is called "What to do until the physician comes."

The characteristics of this presentation are its lucid style ; simplicity, with very few expressions that should be less technical ; its conformity to the latest discoveries in science ; and its large variety of illustrative experiments and of practical points in daily hygiene.

Nothing can well be omitted from these 100 pages ; but one wishes, if the size of the book is not to be increased, that a few pages could be annexed from its anatomy and physiology. So excellent, however, is that portion also, that one hesitates to specify what to leave out. But we need more public school instruction in the hygiene of public and private buildings, of street and public conveyances ; the need of playgrounds, parks, bath-houses, etc. ; more concerning plumbing and drainage ; patent medicines, food adulterations and preservation ; and many other items. Their omission illustrates the impossibility of even alluding to all essentials in so small space.

If one book only is to cover hygiene in this grade we can but admire the ability, judgment, and tact with which all, including temperance for physiologic reasons, have been harmonized in this latest volume of the evolution.

Text-books for high school ages have been attempted for a century or more. For evident reasons they are easier to prepare than those for children of 10 years ; and they reach but one-twentieth of the pupils.

Elementary text-books.

The elementary volumes are more experimental, being the product of but 20 years' effort, and are even more important since

they reach the nineteen-twentieths of pupils—those from the social classes greatly needing knowledge of hygiene in their poor environment.

Modern pedagogic methods are based on the idea of the ascending spiral. Each branch essential to community living is introduced in the first year as far as the child can understand each. In successive years they are *recurred to on a higher plane*.

The law has long recognized language, numbers, and physical environment (only geography formerly; now, "nature study" in lowest grades), as essentials,—to which it now adds health. Thus every child, in whatever year compelled to leave school, has received to the extent of his capacity something of these four.

To illustrate this method in teaching science we select from these volumes the subject of fermentation that seems as difficult for a child's mind as any.

In the three years of oral lessons: the teacher in the first grade speaks of the sweet juice pressed out of apples, in about six hours beginning to "decay," and so turning partly into a poison—alcohol, this with simple object lessons showing the processes. (At this point two million children leave school.) In the second year the pupils are shown fine moss and its little plants; they are told that all dust contains still smaller plants, ferments; they see the dusty down on grapes and how it gets in the juice expressed in a glass; they are told how the ferments grow changing part of the juice to a kind of air and to alcohol, a poison, both changing the taste of the sweet grape juice. In the third year after reviewing the stories of cider and wine, the story of bread is told; they chew the raw grain to taste its starch, and the sprouted grain to taste its sugar. The story of producing beer with the little plant, yeast, is easy, making the gas that bubbles up and alcohol which is dangerous because a little often causes one to want enough to ruin one.

The first text-book then gives them in print, in the fourth grade the story of the ferments in dust that get into good fruit juice and grain, changing them, etc. Here they pass to the grammar grade, having lost nearly four millions from their entering class of over five millions. A little over one million enter the grammar school, the fifth grade. The intermediate volume

(for the fifth and sixth grades) introduces the words bacteria and carbon dioxide, while the volume for the seventh and eighth grades speaks of fermentation more concisely, and adds the subject of distillation and the different boiling-points of alcohol and water. These successive varied versions cannot seem "repetitions" to children of these ages. Only one-third of a million pupils are now left of the entering five millions.

In correspondingly progressive manner the anatomy, physiology, and hygiene of respiratory, circulatory, digestive, and nervous systems are taught, *with suggestions of illustrative experiments* which the teacher is free to improve according to her own ideas.

In each volume the law of one-fifth¹ space for the study of the nature and effects of alcohol and other narcotics is observed. The intermediate book is notable for one point—more than one-half is given to hygiene (text 178 pp, hygiene 110). It contains an excellent chapter on table manners, and introduces public hygiene simply and comprehensibly to children from 9 to 11 years old. Personal hygiene is well presented, with some few details of household and school hygiene. Common towels, flies, mosquitoes, as germ carriers, and a few other details of communicable diseases are mentioned. All this teaching is based upon rudimentary science.

The differences between the book for the upper grammar grades (729,000 pupils, 11 to 13 years of age) and the preceding volumes are marked.

Its English is distinctly adult, so are its processes of thought. It is distinctly a scientific book. Its physiology is based on cell activities, and its hygiene traces back to histology.²

The varieties of cells, their anatomy,—wall, protoplasm, cell lymph, cell plasma with its minute grains, the nucleus and its wall and anatomy, true and false nucleoli, etc., are described. Tissues and organs are traced up from cells; the nervous system built of peculiar cells; nerve trunks, ganglia, the cerebro-spinal and sympathetic systems; reflex action, in this connection habits being

¹ This amount is found sufficient.

² It should be stated here that the distinguished scholar who is its author was, unexpectedly to the committee, in the audience. In the discussion published on page 61 he courteously spoke of the criticisms and stated that already the edition is under revision with these details in view.

interestingly handled. Later the brain and spinal cord, medulla oblongata, cerebrum and cerebellum are further studied; grey matter and white, nerve cells with their anterior and posterior horns, dendrites and neurites, pigment, neuroglia, sensory and motor nerves, nerve endings, cerebral localization.

With practically equal detail are taught the anatomy and physiology of lungs and respiration; heart, blood and circulation; stomach, liver, pancreas, intestine, digestion, and nutrition; skin, kidney and excretion; special sense organs; a little over one-fourth of the text being given to hygiene, and of this over one-half is for alcohol and tobacco. The book closes with the skeleton and muscular system simply outlined. It also gives several good pages to domestic economy.

This interesting twentieth century volume, with its minute and gross anatomy, its physiology, and its hygiene as far as it goes, is correct—theoretically, scientifically, logically. The questions that force themselves upon us are: Can even the brightest children with their best endeavor read this text understandingly? How many of our \$600, \$700, \$800 grammar teachers are equal to this? Is it wise? is it possible? is it even desirable to exercise the minds of little children, 11, 12, 13, possibly 14 years of age in these minutiae? Is it essential to the teaching of hygiene?

Before attempting the answers it would be well to spend at least several hours in the school-room listening to the versions of physiologic details prevailing there. One comes away feeling anew that a child is not exactly a diminutive adult—but *sui generis*, another stage of evolution altogether.

TEXT-BOOKS AND AUTHORS COMPARED IN CHRONOLOGIC GROUPS.

In the comparison of text-books of the period 1883-1904, the chronologic list (p. 42) offers several suggestions.

In the first 11 years 30 indorsed books (23 newly) and 15 others (14 new) were published; in the last 11 years 16 indorsed (12 newly) and 32 others (27 new). We can say therefore that in the last decade two times as many unindorsed books have been issued as in the preceding, and that they have increased more than twice as fast as the indorsed. It has not been possible to learn the extent to which the unindorsed have been adopted in

schools,¹ and for the relative merits of the two classes one must look further.

In these two eleven-year periods the totals of new authors have been 17 and 26 respectively: of new books, 34 and 39.

Authors.

From 1883 to 1898, fifteen years, no American scientist except Martin appears among the authors. Foster and Shore put out one physiology with no hygiene. Of these 25 authors there were besides the 3 scientists, 14 physicians² (2 physiologists in medical schools, 1 city health officer, 11 practitioners), and 8 public school general teachers.

From 1898, seven years, there have been 24 authors; 6 old (3 physicians and 3 scientists); 18 new producing 24 of the 28 new books. General practitioners and general school-teachers have each one representative among the 18 new authors. The medical professors of physiology in medical schools are 3. There is one special teacher of physiology in elementary schools, and one editor. The remaining 11 new authors are special instructors in biology (6), physiology (1), physics (1), natural science (1), psychology and physiology (1), psychology and pedagogy (1), in universities (3), colleges (4), normal schools (3), and high schools (1). It appears that specialists in natural sciences are replacing physicians and general school-teachers as authors of school physiologies.

Grades of books.

The grades of new text-books before and after 1898 are as follows:

	1883-1897.	1898-1904.	Total.
High.....	22	14	36
Grammar.....	17	7	24
Primary.....	6	7	13
Total.....	45	28	73

¹ Several state laws restrict changing text-books to periods of at least 5 years. Frequent changes are inadvisable.

² There is a certain inconsistency in distinguishing between physicians and scientists when discussing public instruction in physiology and hygiene. It has been attempted in this report because there is a small minority who believe "physicians" are less useful than "scientists" in the subjects discussed. Martin, Foster and Shore have been classed with scientists and scientific authors, and not with physicians and medical authors. The data can be altered by 3 accordingly by those who object. Other physicians too are on the border line but have been retained among medical authors.

In the elementary grades twice as many books are published for grammar as for primary pupils.

As many are produced for high schools as for all the elementary grades where there are 30 times as many pupils; *i. e.*, in both periods, whether physicians and public school-teachers, or scientists and physicians predominate, books of adult grade (for the great minority) have received the attention of the majority of authors.

Of the unindorsed books there have been 5 series of 2 volumes each, 3 series of 3 volumes each, and 16 single books. Compare this with the indorsed series given on page 15, and in Appendix C, page 57.

Twenty-two revisions.

Sixteen indorsed.

Martin's "Human Body" (Elementary) 1883—1884, 1889, 1894, 1900.

Blaisdell's "Our Bodies" 1884—1892, 1904.

Jahonnot and Bouton 1884—1885, 1889.

Tracy's "Essentials" 1884—1886, 1889.

Blaisdell's "How To Keep Well" 1885—1891.

"Child's Book" 1886—1891.

Stowell's "Healthy Body" ?—1888, 1893.

"Essentials" 1892—1896.

Brand's "Good Health" ?—1890.

Six not indorsed.

Walker's Physiology 1883—1900.

Hutchison's Physiology (1870) 1884—1895, 1902.

Kellogg's "First Book" 1887—1888.

Foster and Shore 1894—1898, 1901.

TEXT-BOOKS AND AUTHORS COMPARED AS TO QUALITY.

It is undeniable that the poorest book of the first period was written by a physician. But in comparing all the books of medical and scientific authors in the same decades, it is impossible to claim the superiority of either kind of mental training as a preparation for writing school text-books on physiology and hygiene.

Certain of the best books are by both, and the average excellence of one group of books is not higher than that of the other. Distinctly scientific blunders are made by both. Indeed it is safe to say that no book is free from a few such mishaps. Our bright normal special teachers can invariably point out or demonstrate a

few by every author, as a part of the training of the critical faculty of their pupils. An occasional modern scientist is so zealous in physiology—presenting details admirably—that hygiene has but one-tenth of his 400 pages. As anatomy usurped in earlier books, so there is a tendency for physiology to do in the later. We find modern scientists teaching as facts that malaria comes from the air of swamps and deeply dug soil, diphtheria from damp cellars, typhoid from air escaped into houses from defective plumbing, just as the physician's book of the early '80s taught of tuberculosis. We likewise find physicians giving as established truths beliefs that have not been proven—that investigators have failed to prove.

We find by both classes of authors redundant scientific polysyllables, lack of judgment, of sense of fitness, of literary ability, of accuracy of expression, lack of knowledge of pedagogic essentials.

As we recognize, however, the decided superiority of our present books over those of 1880, it seems clear that the writing of them is an art to be acquired through efforts suggested by these difficulties—old, all of them; and our criticisms are a continuation and development of those existing when hygiene was first made a mandatory study. It is to be noted, too, that they correspond in many respects to those made by our leading physiologists relative to text-books in medical schools.

Topics in hygiene.

Practically, every book gives some consideration to classes of foods and their choice, a very few briefly touching on cooking.

Nearly all of the 73 examined, besides general personal hygiene and "scientific temperance," have a few words, paragraphs, or pages for one or several of the following topics, listed in order of frequency.

Foods (mentioned above).

First aid to injured.

Care of the sick.

Quality of clothing.

Common diseases.

Poisons and antidotes.

Drinking-water and drainage.

Cooking.

Several gymnastic exercises.

Contagious diseases.

Several active games.

Antiseptics and disinfectants.

"Public Hygiene."

Food inspection.

Patent medicines.

School inspection.

Tests for vision and hearing.

The great majority of the topics receive only briefest discussion, and the last seven are chiefly in a few recent books.

Progress.

In their treatment and in that of anatomy, physiology, and the general hygiene of skeleton, muscles, circulatory, respiratory, digestive, excretory and nervous systems there are six distinct lines of progress.

1. The subjects have been simplified until we have 37 text-books for elementary grades, with $13\frac{1}{4}$ millions who go no further in the schools; a few books as excellent for their purpose as are any of the high-school books for theirs. Twenty-two years ago there were practically none.

2. The average proportion of hygiene is one-third of modern text-books, a little more in elementary grades and less in high school. A very few give more than one-half their pages to it. The average in 25 books "for high schools" (or colleges) published before 1883 is less than one-twelfth.

3. Illustrative experiments in all grades are very greatly multiplied; and for the high schools since 1897 there have been published 3 books entirely of simple laboratory experiments; and one text-book in which experiments constitute fully one-half the book, forming the basis of its teachings. Even in 1883 a few suspected that to try to teach children science without demonstration results in "a mere mummerly of words."

4. Easily observed facts about other objects in animal and vegetable life, and simple principles in physics and chemistry are much more often utilized to make the main subject clearer, the former especially in elementary grades.

5. Scientific progress is reflected not only in many details of accuracy of statements, but also in added teachings concerning cells, cerebral localization and the nervous system; bacteria, communicable diseases, dust, antiseptics, inspection of schools, foods and milk; common intoxicants and patent medicines. A few school-books before 1883 urged the dangers of alcoholic drinks, usually employing the confirmed inebriate as an example.

6. There are fewer pathologic details (or they are selected with greater discretion), and more attention to normal states. The ideal of a healthy, active physical life as a basis for success and happiness is kept in the foreground and made more interesting. That "success depends on health" is fortified in several books by numerous lately discovered facts in school work and business life.

It is probable that no other kind of text-book has evolved so rapidly to this degree of merit. It is certain that no other country has so good, and that the leading physicians and educators of England almost unanimously, and those of Germany and of lesser governments, are urging the American teaching of hygiene and temperance on a physiologic basis.

Teachings re alcohol, alcoholic drinks, and tobacco.

¶ In these 22 years all but six books (four do not discuss the subject) teach that tobacco contains a narcotic poison, the habitual use of which injures the person, especially children, physically and mentally.

All but the above four teach that alcohol in large quantities is a poison, as are alcoholic drinks in excess.

Concerning total abstinence and the moderate use of alcoholic drinks:
—Indorsed books and 32 of the 35 others teach total abstinence. "A little alcohol has the power to create an irresistible appetite for more." "All alcoholics were once moderate users and never intended anything else." "No total abstainer ever becomes an alcoholic."

Many recent indorsed books and non-indorsed teach that small amounts of alcohol are oxidized in the body, liberating energy. (Earlier books did not so teach.)

The indorsed have always taught that alcohol is a narcotic poison, as do nearly one-half the others, and some teach that it is a

poison simply. The indorsed recently add, as do nearly one-half of other modern books, that other poisons too are oxidized in the body liberating energy, but that this does not make a poison a food.

The indorsed and about one-half the others (several do not discuss the point) teach that alcohol produces its so-called stimulating effects by acting as a narcotic poison, paralyzing certain nerve centers. A small minority call it a stimulant "whose action is not fully understood." Some add that its stimulating effects are followed by a reaction.

This discussion of whether alcohol is a food, stimulant, or poison, or acts as one, or has a food value seems to turn on definitions and forms of expression rather than on facts of physiologic experiments, about which there is little real dispute at bottom.

Those authors who call alcohol "a food" add that it is a dangerous one, very expensive, and that it is not possible to obtain an appreciable quantity of nourishment from it because of its poisonous effects.

Those who call it a stimulant add "but it should be taken only on the prescription of a physician." Some state that it is good for "fatigue," "faintness," "feeble digestion," "invalids," that it is strengthening, or takes the place of food in certain diseases; and advise it for certain emergencies. These frequently add "but only by medical advice."

The Committee of Indorsement,¹ while urging authors to meet the popular fallacies concerning alcoholic drinks, draws the line strictly at any discussion of medical prescribing on the grounds that :

1. It is not proper in a book for children.
2. The majority of people will doctor themselves if given "a little knowledge," particularly with this remedy, and for such ills as fatigue, faintness, feeble digestion, invalidism, etc.
3. Scientific proof is still lacking of its being a suitable remedy for these conditions.

For similar reasons it does not indorse school-books containing

¹ For its standard see p. 13; also see Appendix C, p. 55.

disapproval of cosmetics and hair dyes, but giving prescriptions for them, as did an early medical author.

Several excellent books avoid, as far as possible, discussion of foods and stimulants in this connection. Several present the subject of using alcoholic drinks and tobacco admirably on an industrial and sociologic basis. One medical editor "believes that the questions involved are ethical and not physiological," and that discussion of the use of alcohol and tobacco should not be in a school-book on physiology and hygiene.

• *Comparison of indorsed text-books with others.*

A comparison of these books on the basis of indorsement by the committee of the Woman's Christian Temperance Union, eliminating "scientific temperance," of which enough has been said, has been attempted. As equally distinguished physicians and scientists are in each group of authors, it should go without saying that the difference cannot be great.

Before 1898 the superiority was clearly in favor of the indorsed books, chiefly for their adaptability to all grades. This means superior excellence, for that period, in simplicity, in choice of topics and of methods for introducing them to the several ages, in variety of interests, and in attractiveness of editing. The numerous shortcomings in text-books mentioned on page 25 are no more characteristic of indorsed than of other books.

Since 1898 even these differences are less. Books of equal excellence for primary, intermediate, grammar, and high-school grades are indorsed and not. High-school books not indorsed are in greater variety and are promising more progress in the future. The question arises concerning several of this latter group: Can any but the author and the very few specially trained high-school teachers make a success of these books? A considerable proportion of them seem beyond the present teachers, if not beyond the pupils. It still continues that for average teachers and schools the series of four or five grades issued under indorsement are better adapted, more nearly complete, more nearly on pedagogic lines.¹

¹ But an individual book not indorsed is sometimes in several respects the equal or even the superior of an indorsed book in the same grade.

	Indorsed.	Not indorsed.
High.....	10	23 and 3 laboratory books.
Grammar.....	8	16 8
Intermediate.....	8	
Primary.....	8	9 4
Oral.....	1	
	—	—
	35	35

Under the guidance of a central committee the grades have been provided much more nearly according to their needs.

*Indorsement.*¹

Just what does indorsement mean so far as it affects the quality of a book? This, that three or more readers, well educated, specially trained by years of practice in criticism of school physiologies, students of the problems involved from teachers', pupils', authors', public and "scientific temperance" view points, do systematically go over the volume, noting not only errors as to the nature and physiologic effects of alcohol, but also errors in English, indefiniteness, illogic, repetition, exaggeration, unnecessary difficulties, unsuitable words, inconsistencies, dogmatism instead of explanation, scientific inaccuracies, poor taste—chiefly in giving facts that seem simple to the author, but have unfortunate influences on children of certain ages. Undoubtedly some faults are overlooked, and readers, like authors, are fallible; but every editor can appreciate the advantage of such examination, as do many authors. Standards in these matters have grown in this period as well as facts of science, and undoubtedly some books indorsed in the earlier years would not "pass" if presented now.

Besides this service, the committee has occasionally secured the writing of a series for all grades, and in series writing there is an art. In its latest, the "New Century Series," the committee acts upon one important lesson it has learned, *viz.*, that to secure the necessary freshness and variety in the various grades, it is best to have the volumes *coordinated, but written by different authors*. It seems impossible, as a matter of experience, to avoid monotony and repetition if all are by the same writer. For the first time a book of oral lessons for teachers of the three lower primary grades is offered, in this series,—a suggestive "path-finder" for a group of teachers who have had much difficulty in bringing science

¹ See Appendix C, p. 55.

down to their pupils. As in this latest volume so, unquestionably, the indorsed books thus far have initiated the majority of practical improvements. This could reasonably be expected. Other books emulate them rapidly and the end is not yet.

Books by general and special school-teachers.

Nine books, a small proportion, have been written by 9 general school-teachers of the various grades, one by a special teacher of physiology in elementary grades, one by a special teacher of biology in high school.

This group is of exceeding interest since it is fair to assume that the authors tested their published teachings upon their pupils, as no others have directly. In this they certainly have done "original investigating" of such a nature that it should be most valuable, even indispensable, in compiling text-books.

But again we have to say that the differences between the majority of these and others is not marked, one reason being that these teachers consulted physicians, while the prefaces of medical and scientific authors usually record consultations with teachers. Two or three of the later books of this little group easily rank among the best. The majority of the earlier books are disappointing having many of the common defects, and being too evidently compiled without sufficient scientific discrimination.

Two comparisons are perhaps justifiable :

1. The average of excellence of the teachers books is a little higher than that of others.

2. In one or two of the later books there is a variety of ideas, a directness, clearness, simplicity of discussion and illustration that convinces any skeptic that the essential truths of natural science and of hygiene are not beyond the comprehension and interests of any school age ; that when such teaching fails it is not because of the subject than which none is richer in varieties of interest, but because of faulty presentation, lack of judgment in selection of details, or of knowledge or of pedagogic skill. These difficulties are peculiar to a progressive subject.

It is regretted that the number of special school-teachers (2) among these authors is too few for further comparisons.

An important omission.

One feature of all these volumes is that all relating even re-

motely to the anatomy, physiology, and hygiene of the reproductive system is omitted.

Many teachers with an accent of relief reply: "It has been decided finally that these subjects *must be properly taught to children*; but that *it cannot be done in school.*"

The committee has endeavored to present impartially such details as it has had time and opportunity to collect. It has so far as possible presented facts rather than opinions, and will follow the same plan in studying the other direct methods of teaching hygiene mentioned in the introduction. After these have had a reasonably fair survey, comparisons and conclusions will follow with as just discrimination as to what is good and what is desirable as this basis of facts allows.

APPENDIX A.

ANALYSIS OF SPECIFICATIONS IN LAWS RELATING TO THE TEACHING OF PHYSIOLOGY AND HYGIENE¹ IN PUBLIC SCHOOLS, 1903, PUBLISHED IN BULLETIN, APRIL, 1904.

1. Where Physiology and Hygiene Shall Be Taught.

(a) *In all public ("common," "free") schools of the state.*

1. Arkansas.
2. California.
3. Connecticut (also in normal and teachers' training schools. Not in high schools and lowest primary).
4. Colorado.
5. Delaware.
6. Florida.
7. Georgia.
8. Idaho (not in primary?).
9. Iowa.
10. Michigan (all schools, whether incorporated under special charter or under the general laws).
11. Mississippi.
12. Montana.
13. Nevada.
14. New Hampshire.

¹ When physiology and hygiene are mentioned the phrase "including the nature of alcoholic drinks and narcotics, and special instruction as to their effects upon the human system" is also to be understood, as it is the *sine qua non* of these laws.

15. North Dakota.
16. Oregon.
17. South Dakota.
18. South Carolina.
19. Texas.
20. Vermont (not in district schools?).
21. Virginia.
22. Washington.
23. West Virginia.

(b) In all schools supported in whole or in part by public money, or under state control.

1. Alabama (and in colleges).
2. Illinois (and in all schools connected with reformatory institutions; and in all normal schools, teachers' training classes and teachers' institutes, except above second year of high school).
3. Indiana (and in all educational institutions so supported).
4. Kansas.
5. Kentucky.
6. Louisiana.
7. Maine.
8. Maryland (and in all educational institutions so supported).
9. Massachusetts (also in private day schools; except schools solely for instruction in particular branches).
10. Minnesota (and in all educational institutions so supported).
11. Missouri.
12. Nebraska.
13. New Jersey.
14. New York (and in all normal schools, teachers' training classes and teachers' institutes, and schools connected with reformatory institutions).
15. North Carolina.
16. Ohio (and in all educational institutions so supported, in normal schools, teachers' training classes and teachers' institutes).
17. Pennsylvania (and in all educational institutions so supported).
18. Rhode Island.
19. Tennessee.
20. Utah (and in all educational institutions so supported).
21. Wisconsin.
22. Wyoming (and in all educational institutions so supported).

(c) In all common or public, Indian and colored schools in the Territories, and in all Naval and Military schools and Academies of the United States, and in the District of Columbia.

2. To Whom Physiology and Hygiene Shall Be Taught.

(a) To "all pupils" in said schools.¹

- | | |
|--------------------|---------------------|
| 1. Alabama. | 13. New Jersey. |
| 2. Arkansas. | 14. North Carolina. |
| 3. Colorado. | 15. North Dakota. |
| 4. Delaware. | 16. Ohio. |
| 5. Georgia. | 17. Oregon. |
| 6. Indiana. | 18. Pennsylvania. |
| 7. Iowa. | 19. Tennessee. |
| 8. Kansas. | 20. Vermont. |
| 9. Maine. | 21. West Virginia. |
| 10. Maryland. | 22. Wisconsin. |
| 11. Massachusetts. | 23. Congress. |
| 12. Michigan. | |

(b) The law does not specify.

- | | |
|-----------------|-------------------|
| 1. Florida. | 8. Nebraska. |
| 2. Idaho. | 9. Nevada. |
| 3. Louisiana. | 10. Rhode Island. |
| 4. Minnesota. | 11. Texas. |
| 5. Mississippi. | 12. Utah. |
| 6. Missouri. | 13. Virginia. |
| 7. Montana. | 14. Washington. |

(c) Single specifications.

California: in all grades, in all classes, during entire school course.

Connecticut: above third grade and below high school.

Illinois and New York: below second year of high school.

Kentucky: "scientific temperance instruction" shall be given to all pupils studying physiology and hygiene (the latter are prescribed in the curriculum).

New Hampshire: above primary grade.

South Carolina: as far as practicable.

South Dakota: in the several grades in which it may be required.

Wyoming: above second primary grade.

¹ The interpretation of the law in several states in this group, as given by their attorneys-general, or by their superintendents of education, is that it means "all pupils sufficiently advanced in age and scholarship."

3. Teachers' Examinations in Physiology and Hygiene.

(a) Specified as required.

- | | |
|----------------------------|------------------------------|
| 1. Alabama. | 16. Missouri. |
| 2. Arkansas. | 17. Nebraska. |
| 3. Connecticut. | 18. New Hampshire. |
| 4. Delaware. | 19. New Jersey. ¹ |
| 5. Florida. | 20. New York. |
| 6. Georgia. | 21. North Carolina. |
| 7. Idaho (except primary). | 22. North Dakota. |
| 8. Illinois. | 23. Ohio. |
| 9. Indiana. | 24. Pennsylvania. |
| 10. Iowa. | 25. Tennessee. |
| 11. Kansas. | 26. Texas. |
| 12. Louisiana. | 27. West Virginia. |
| 13. Maine. | 28. Wisconsin. |
| 14. Minnesota. | 29. Wyoming. |
| 15. Mississippi. | 30. Congress. ² |

(b) Not specified by the remaining fifteen laws, although these states have a school law containing the equivalent, viz., that teachers must pass satisfactory examinations in such branches as are required by law to be taught in said schools.

4. Method of Teaching Specified.

(a) Oral instruction sufficient.

- | | |
|----------------|-------------|
| 1. California. | 2. Indiana. |
|----------------|-------------|

(b) By text-books in the hands of pupils.

- | | |
|-------------------------|-----------------------------|
| 1. Colorado, also (d). | 6. Nevada. |
| 2. Delaware. | 7. New Hampshire, also (d). |
| 3. Maryland, also (d). | 8. Virginia, also (d). |
| 4. Michigan, also (d). | 9. Wisconsin. |
| 5. Minnesota, also (d). | |

(c) Both orally and by book in the hands of pupils.

- | | |
|------------------------------|----------------------------|
| 1. Connecticut. | 6. North Dakota, also (d). |
| 2. Illinois, also (d). | 7. Oregon. |
| 3. New Jersey, also (d). | 8. Wyoming. |
| 4. New York, also (d). | 9. Congress, also (d). |
| 5. North Carolina, also (d). | |

¹ Except teachers of music, drawing, manual training, or other subjects not included in the usual school curriculum.

² Law does not mention teachers in naval and military academies.

(d) "*Regularly,*" or "*as regularly,*" or "*as thoroughly,*" or "*in the same manner*" as any other subject.

- | | |
|------------------------------|-------------------------------|
| 1. Alabama. | 14. New York, also (c). |
| 2. Arkansas. | 15. North Carolina, also (c). |
| 3. Colorado, also (b). | 16. North Dakota, also (c). |
| 4. Georgia. | 17. Ohio. |
| 5. Illinois, also (c). | 18. Oregon, also (c). |
| 6. Iowa. | 19. Pennsylvania. |
| 7. Kentucky. | 20. Tennessee. |
| 8. Maryland, also (b). | 21. Utah. |
| 9. Massachusetts. | 22. Vermont. |
| 10. Michigan, also (b). | 23. Virginia, also (b). |
| 11. Minnesota, also (b). | 24. West Virginia. |
| 12. New Hampshire, also (b). | 25. Congress, also (c). |
| 13. New Jersey, also (c). | |

(e) *Not specified.*

- | | |
|-----------------|---------------------|
| 1. Florida. | 8. Montana. |
| 2. Idaho. | 9. Nebraska. |
| 3. Kansas. | 10. Rhode Island. |
| 4. Louisiana. | 11. South Carolina. |
| 5. Maine. | 12. South Dakota. |
| 6. Mississippi. | 13. Texas. |
| 7. Missouri. | 14. Washington. |

5. Specifications *re* Text-books on Physiology and Hygiene.

(a) *Shall be "approved."*

Colorado: by board of directors of school district.

Michigan: by state board of education.

Minnesota: by superintendent of public instruction and presidents of normal schools.

Nevada: by state board of education.

New Hampshire: by superintendent of public instruction.

North Carolina: by state text-book commission.

Virginia.

Wisconsin: by state superintendent and by state board of health.

(b) *Shall give to "scientific temperance instruction" certain minimum space.*

In high school 20 pages.

- | | |
|--------------|--------------------|
| 1. Illinois | 3. New York. |
| 2. Michigan. | 4. North Carolina. |

Below high school:

Michigan and North Carolina one-fourth of pages.

Illinois and New York one-fifth of pages.

New Jersey, "space for full and adequate instruction."

Illinois and New York specify that the pages in a separate chapter at the end of the book shall not be counted in this minimum. The same motive dictates item (c) following.

(c) "*Scientific temperance*" shall be taught "in connection with the several divisions of the subject of physiology and hygiene."

- | | |
|--------------|--------------------|
| 1. Colorado. | 5. North Carolina. |
| 2. Illinois. | 6. Wyoming. |
| 3. Maryland. | 7. Congress. |
| 4. New York. | |

The following seven laws where no text-book is specified make the same provisions:

- | | |
|--------------|-------------------|
| 1. Alabama. | 5. Ohio. |
| 2. Arkansas. | 6. Pennsylvania. |
| 3. Georgia. | 7. West Virginia. |
| 4. Iowa. | |

(d) *Shall be graded to the capacities of fourth year, intermediate, grammar and high-school grades.*

Illinois and New York.

Maryland thriftily provides that "said text-books shall be published, printed and sold in the State of Maryland."

6. Minimum Lessons Specified.

In lowest three primary years (oral).

Illinois: three lessons weekly, 10 weeks each year.

New York: two lessons weekly, 10 weeks each year.

From fourth year primary to second year high school.

Illinois: four lessons weekly, 10 weeks each year.

New York: three lessons weekly, 10 weeks each year.

North Dakota: oral instruction for those not able to use text-books, 15-minute lessons four days weekly, every school week.

7. Must Pass the Same Tests for Promotion in this as in Other Studies.

- | | |
|--------------|---------------------------------------|
| 1. Illinois. | 3. Ohio. |
| 2. Iowa. | 4. New York all regents. ¹ |

New York: all regents' examinations must cover this subject.

¹ Examinations must cover this subject.

8. Responsibility for Enforcement of Law Specifically Assigned.

(a) *To local school authorities (director, committee, superintendent, or teacher, some or all).*

- | | |
|-----------------|---------------------|
| 1. Colorado. | 13. Nebraska. |
| 2. Connecticut. | 14. New Hampshire. |
| 3. Delaware. | 15. North Carolina. |
| 4. Florida. | 16. Oregon. |
| 5. Georgia. | 17. Pennsylvania. |
| 6. Illinois. | 18. Rhode Island. |
| 7. Indiana. | 19. Utah. |
| 8. Iowa. | 20. West Virginia. |
| 9. Maine. | 21. Wisconsin. |
| 10. Maryland. | 22. Wyoming. |
| 11. Michigan. | 23. Congress. |
| 12. Minnesota. | |

Arkansas adds county examiners.

Ohio adds state commissioner of common schools.

New York adds state superintendent.

South Carolina adds county boards of education.

Washington adds county superintendent and district clerk.

(b) *Alabama places responsibility solely on state superintendent of education; New Jersey, on the school district; North Dakota, on county superintendent.*

9. Reports and Penalties Specified.¹

ARKANSAS: *Report*, county examiners to state superintendent; *penalty*, not specified.

COLORADO: *Report*, not; *penalty*, removal from office.

CONNECTICUT: *Report*, not; *penalty*, comptroller may withhold, from town or district, whole or part of school dividend.

DELAWARE: *Report*, not; *penalty*, teacher, \$25; any higher authority, \$25; recoverable before a justice of peace, by any informer.

GEORGIA: *Report*, local superintendent to state commissioner; *penalty*, not.

¹ In practically every state a penalty exists for neglect to teach a subject required by law. Only those states are noted that make special mention of a penalty in this connection.

- ILLINOIS: *Report*, not; *penalty*, any school officers \$5 to \$25.
- INDIANA: *Report*, not; *penalty*, superintendent, principal or teacher, dismissal.
- IOWA: *Report*, county superintendent to state superintendent; *penalty*, teacher certificate revoked by local superintendent, one year.
- MICHIGAN: *Report*, teacher (certifies) to director; he, to township clerk; *penalty*, board, "fine or forfeiture, the same as for neglect of any other duty pertaining to their office."
- MINNESOTA: *Report*, county superintendent to state superintendent; *penalty*, teacher's certificate annulled by county superintendent; board, loss of part of state apportionment.
- NEW HAMPSHIRE: *Report*, state superintendent in biennial report; *penalty*, any member of board, \$200.
- NEW JERSEY: *Report*, not; *penalty*, district, loss state apportionment.
- NEW YORK: *Report*, local supervising officers of city, district, normal schools, or any citizen, to state superintendent; *penalty*, teacher, license revoked by state superintendent; locality, no state apportionment.
- NORTH CAROLINA: *Report*, not; *penalty*, any school officers, removal from office.
- NORTH DAKOTA: *Report*, county superintendent to state superintendent; *penalty*, teacher discharged and certificate revoked.
- OHIO: *Report*, state commissioner in annual report; *penalty*, any officer, \$25, to county school fund.
- OREGON: *Report*, teacher (certifies) to state superintendent; *penalty*, district, no public money.
- PENNSYLVANIA: *Report*, local superintendent and board to state superintendent: *penalty*, district or school, no state appropriation.
- WASHINGTON: *Report*, heads of families or district clerk to county superintendent in writin , he to county treasurer; *penalty*, boards no public money, county superintendent \$100,

to school fund, enforced by county attorney; district clerk \$25, to district, and liability for all district school funds lost, to be recovered by superintendent or by any citizen; teacher no salary.

WEST VIRGINIA: *Report*, not; *penalty*, any school officers, removal from office.

WYOMING: *Report*, county and city superintendent and secretary of board, to state superintendent; *penalty*, loss of state appropriation to district, city or school.

10. The Simplest Laws.

(a) *Eight states simply enumerate this subject in the regular curriculum for all schools.*

- | | |
|---------------|--------------------|
| 1. Idaho. | 5. South Carolina. |
| 2. Louisiana. | 6. South Dakota. |
| 3. Montana. | 7. Texas. |
| 4. Nevada. | 8. Vermont. |

(b) *Three states by a special section simply require it to be taught in all schools.*

- | | | |
|-------------|------------------|----------|
| 1. Florida. | 2. Rhode Island. | 3. Utah. |
|-------------|------------------|----------|

APPENDIX B.

COMMON SCHOOL TEXT-BOOKS, 1883-1904, INCLUDED IN THIS REPORT.

1. Alphabetical List According to Authors.

For fuller details see chronologic list.

Ames, Axel: Elementary Hygiene for the Tropics. 1903.

Anonymous: Hygiene for Young People. Indorsed by Dr. Palmer. 1884.

Child's Health Primer. 1885.

Health for Little Folks. 1890.

Dulany's Standard Physiology. 1884.

Dulany's Primer of Physiology. 1886.

Union Series, 3 vol. 1889-'90.

Anatomy, Physiology, Hygiene. Calif. 1891.

- Baldwin, W. E.*: Essential Lessons in Physiology and Hygiene. 1896.
 Primary Lessons in Human Physiology. 1896.
 Advanced Lessons in Human Physiology and Hygiene. 1899.
- Blaisdell, A. P.*: Our Bodies and How We Live. 1884.
 How to Keep Well. 1885.
 The Child's Book of Health. 1886.
 A Practical Physiology. 1897.
 Life and Health. 1902.
- Brands, O.*: Lessons on the Human Body. 1883.
 Health Lessons for Beginners. 1885.
 Good Health for Children. 1890.
- and *VanGiesen*: Academic Physiology and Hygiene. 1893.
- Brinckerley, W. J.*: Physiology by the Laboratory Method, 2nd ed. 1903.
- Brown, B. M.*: Physiology for the Laboratory. 1900.
- Brown, E. F.*: The House I Live In. 1888.
 Youth's Temperance Manual. 1888.
 Eclectic Physiology. 1888.
- Buckelew and Lewis*: Practical Work in the School Room. 1885.
- Colton, B. P.*: Physiology, Experimental and Descriptive. 1898.
 A Briefer Course. 1899.
 Elementary Physiology and Hygiene. 1902.
- Conn, H. W.*: Elementary Physiology and Hygiene. 1903.
 Introductory Physiology and Hygiene. 1904.
- Culler, J. A.*: Anatomy, Physiology and Hygiene, 3 vol. 1904.
- Eadie, R. and A.*: Physiology and Hygiene for Children. 1904.
- Edwards, J. F.*: Catechism of Hygiene. 1893.
 Hygiene with Anatomy and Physiology. 1894.
- Foster and Shore*: Elementary Physiology. 1894.
- Hall, J. W.*: New Century Primer of Hygiene. 1901.
- Hall, W. S.*: Elementary Physiology, Anatomy, and Hygiene. 1900.
 and *J. W. Hall*: Intermediate Physiology and Hygiene. 1901.
- Hewes, H. F.*: Anatomy, Physiology and Hygiene. 1900.
- Hutchison, J. C.*: Treatise on Physiology and Hygiene. 1884 (rev.).

Our Wonderful Bodies and How to Take Care
of Them, 2 vol. 1895.

Huxley, T. (Lee, ed.): Lessons in Elementary Physiology. 1900.

Jahonnot and Bouton: How We Live. 1884.

Jegi, J. I.: Practical Lessons in Human Physiology, Personal Hygiene, and Public Health. 1903.

Kellogg, J. H.: First Book in Physiology and Hygiene. 1887.

Second Book in Physiology and Hygiene. 1894.

Krohn, W. O.: Graded Lessons in Hygiene. 1900.

First Book in Hygiene. 1903.

Lincoln, D. F.: Hygienic Physiology. 1893.

Macy and Norris: General Physiology for High Schools. 1900.

Martin, H. N.: The Human Body. 1883.

and *H. C. Martin: Revised. 1894.*

Mirick, H. M.: Oral Lesson Book in Hygiene. 1901.

Overton, F.: Applied Physiology, 3 vol. 1897, 1898.

Peabody, J. E.: Laboratory Exercises in Anatomy and Physiology. 1898.

Studies in Physiology, Anatomy and Hygiene. 1903.

Smith, W. T.: The Human Body and Its Health. 1884.

Primer of Physiology and Hygiene. 1885.

Smith and Willard: Standard School Physiology, Hygiene and Anatomy. 1897.

Steele, J. D.: Hygienic Physiology. 1884.

Stowell, C. H.: A Healthy Body. 1888 (2nd ed.).

The Essentials of Health. 1892.

Primer of Health. 1892.

Handbook of Simple Experiments in Physiology. 1897.

Tracy, R. S.: Essentials of Anatomy, Physiology and Hygiene. 1884.

Walker, J.: Anatomy, Physiology and Hygiene. 1883.

2. Chronologic Order.

1883

1. *Lessons on the Human Body: an elementary treatise upon physiology, hygiene, and the effects of stimulants and narcotics on the human system.*

By *Orestes Brands*, Principal of Grammar and Primary School No. 4, Paterson, N. J.

For grammar or high schools.

2. *The Human Body*: an elementary text-book of anatomy, physiology and hygiene.

By *H. Newell Martin*, D.Sc., M.D., M.A., F.R.S., Professor of Biology in the Johns Hopkins University.

For high schools. See also 1884, 1889, 1894, 1900.

3. *Anatomy, Physiology, and Hygiene*: a manual for the use of colleges, schools, and general readers.

By *Jerome Walker*, M.D., Lecturer upon Anatomy, Physiology and Hygiene at the Central High School, Brooklyn, and upon Diseases of Children, at the Long Island College Hospital; Physician to the Brooklyn Society for the Prevention of Cruelty to Children; Consulting Physician to the Keith Private Home for Nervous Diseases; and Senior Physician to the Sea-side Home for Children, Coney Island.

For high schools. See also 1900.

1884

4. *Dulany's Standard Physiology*: adapted to intermediate classes and common schools, and containing a statement of the facts relative to the influence of alcohol, tobacco, opium and other narcotics upon the human system.

Anonymous. Published by the Wm. J. C. Dulany Co., Baltimore.

For grammar grades.

Indorsed.

5. *Hygiene for Young People*: adapted to intermediate classes and common schools. Prepared under the direction of the Department of Scientific Instruction of the National Woman's Christian Temperance Union, with a preface and indorsement of scientific accuracy by A. B. Palmer, M.D., LL.D.; Professor of Pathology and Practice of Medicine, and Dean of the Department of Medicine and Surgery in the University of Michigan, at Ann Arbor; and author of a Treatise on the Science and Practice of Medicine.

Anonymous. Pathfinder Series.

For grammar schools.

Indorsed.

6. *Our Bodies and How We Live*: an elementary text-book of physiology and hygiene for use in schools.

By *Albert F. Blaisdell*,¹ M.D.

For grammar grades. See also 1892, 1904.

Indorsed.

7. *A Treatise on Physiology and Hygiene for Educational Institutions and General Readers.*

By *Joseph C. Hutchison*, M.D., President of the New York Pathological Society, Vice-president of the New York Academy of Medicine, Surgeon to the Brooklyn City Hospital, late President of the Medical Society of the State of New York, etc. (Revised from first edition, 1870.)

For high schools. See also 1895, 1902.

8. *How We Live or The Human Body and How to Take Care of It*: an elementary course in anatomy, physiology and hygiene.

By *James Jahonnot and Eugene Boulton*, Ph.D.

For grammar or high schools. See also 1885, 1889.

9. *The Human Body*: an elementary text-book of anatomy, physiology, and hygiene, including a special account of the action upon the body of alcohol and other stimulants and narcotics.

By *H. Newell Martin*, D.Sc., M.D., M.A., F.R.S., Professor of Biology in the Johns Hopkins University.

For high schools, revised (1883). See also 1889, 1894, 1900. *Indorsed.*

10. *The Human Body and Its Health*: a text-book for schools, having special reference to the effects of stimulants and narcotics on the human system.

By *William Thayer Smith*, M.D., Professor of Physiology in Dartmouth Medical College.

For high schools.

11. *Hygienic Physiology*: with special reference to the use of alcoholic drinks and narcotics. Adapted from the "Fourteen Weeks in Human Physiology."

By *Joel Dorman Steele*, Ph.D. [F.G.S. Author of "The Fourteen Weeks Series in Natural Science;" "New Physics," "New Chemistry," "New Descriptive Anatomy," "Popular Geology," "Human Physiology," "Zo-

¹ For further biography see "Who's Who in America."

ölogy," "Botany;" also of Brief Histories (for schools) of the United States, France, Ancient Peoples, Mediaeval and Modern Peoples, Greece, England, etc.] Pathfinder Series.

For high schools.

First book indorsed

12. *The Essentials of Anatomy, Physiology, and Hygiene*: a text-book for schools and academies.

By Roger S. Tracy, M.D., Sanitary Inspector of the New York City Health Department. Author of "Handbook of Sanitary Information for Householdors."

For high schools. See also 1886.

1885

13. *Child's Health Primer*: for primary classes; with special reference to the effects of alcoholic drinks and narcotics upon the human system.

Anonymous. Pathfinder Series.

Indorsed.

14. *How to Keep Well*: a text-book of health, for use in the lower grades of schools, with special reference to the effects of alcoholic drinks, tobacco and other narcotics on bodily life.

By A. F. Blaisdell, M.D.

For intermediate grades. See also 1891.

Indorsed.

15. *Health Lessons for Beginners*: a primer of physiology and hygiene, and simple treatise on the effects of stimulants and narcotics upon the human system.

By Orestes M. Brands, author of "Lessons on the Human Body," Principal of Grammar School, Paterson, N. J.

For higher grammar grades.

Indorsed.

16. *Practical Work in the School Room*. Part 1. A transcript of the object lessons on the human body given in primary department, grammar school No. 49, New York City. Third Edition.

Anonymous.

Entered According to Act of Congress in the Year 1884, by Sarah F. Buckelew and Margaret W. Lewis in the Office of the Librarian of Congress at Washington.

For intermediate grades.

17. *Lessons in Hygiene or The Human Body and How to Take Care of It:* an elementary course in anatomy, physiology and hygiene, for intermediate and grammar grades. Being an edition of "How We Live" revised to comply with the legislation requiring temperance instruction in schools.

By *James Jahonnot¹ and Eugene Bouton,² Ph.D.* Appleton's Series.

For grammar schools. See also 1889.

Indorsed.

18. *Primer of Physiology and Hygiene:* a text-book for primary classes, with special reference to the effects of stimulants and narcotics on the human system.

By *William Thayer Smith, M.D.,* Professor of Physiology in Dartmouth Medical College.

For grammar schools.

1886

19. *Dulany's Primer of Physiology:* for primary classes, with special reference to the effect of alcoholic drinks, stimulants and narcotics upon the human system.

Published by the Wm. J. C. Dulany Company, Baltimore.

For primary grade.

Indorsed.

20. *The Child's Book of Health:* in easy lessons for schools.

By *Albert F. Blaisdell, M.D.*

For primary grade. See also 1891.

Indorsed.

21. *The Outlines of Anatomy, Physiology, and Hygiene:* being an edition of "The Essentials" [etc. see 1884,] revised to conform to the legislation making the effects of alcohol and other narcotics upon the human system, a mandatory study in public schools.

By *Roger S. Tracy, M.D.,* Register of Records of the New York City Health Department; author of "Hand-book of Sanitary Information for Householders." Appleton's Series.

For high schools. See also 1889.

Indorsed.

¹ Teacher in various public schools, including normal, from 1844 for 40 years. Author of "Principles and Practice of Teaching," numerous books on natural science, etc.

² Teacher in Albany Academy; Principal New Paltz Normal School; later, Superintendent Schools, Pittsfield, Mass.

1887

22. *First Book in Physiology and Hygiene.*

By J. H. Kellogg,¹ M.D.

For grammar schools. See also 1888.

1888

23. The same. Revised edition.

24. *The House I Live In* or An Elementary Physiology for Children in the Public Schools, with special reference to the nature of alcoholic drinks and narcotics and their effects upon the human system. Revised.

By Eli F. Brown, M.D. Eclectic Series.

For primary or intermediate grades.

Indorsed.

25. *Youth's Temperance Manual*: an elementary physiology, prepared with special reference to the nature of alcoholic drinks and narcotics, and their effects upon the human system, and in accordance with the requirements of the Woman's Christian Temperance Union.

By Eli F. Brown, M.D. Eclectic Series.

For grammar grades.

Indorsed.

26. *The Eclectic Physiology or Guide to Health*: with special reference to the nature of alcoholic drinks and narcotics and their effects upon the human system.

By Eli F. Brown, M.D. Eclectic Series.

For high schools.

Indorsed.

27. *A Healthy Body*: a text-book on anatomy, physiology, alcohol and narcotics for use in intermediate grades in public and private schools. 2nd. ed.

By Charles N. Stowell, M.D.² Health Series.

For intermediate grades. See also 1893.

Indorsed.

1889

28. Jahonnot's and Bouton's "Lessons in Hygiene" (1885), revised.

Indorsed.

29. Martin's "Human Body" (1884), third edition, revised.

Indorsed.

30. Tracy's "Outlines," etc. (1886), revised.

Indorsed.

¹ For personal data see 1894.

² For personal data see 1897.

31. *Physiology and Health*: studies of the human body and of the effects of alcoholic drinks and narcotics upon life and health. 3 vol.

Anonymous. The Union Series.

Number one—for primary classes.

Indorsed.

32. Number two—for intermediate classes.

Indorsed

1890

33. Number three—for secondary classes.

Indorsed.

34. *Good Health for Children*: in easy lessons upon food, drink, air and exercise.

By *Orestes Brands*, Late Superintendent of Schools, Paterson, N. J.; author of "Lessons on the Human Body" and "Health Lessons for Beginners." Revised Edition.

For lower grammar grades.

Indorsed.

35. *Health for Little Folks.*

Anonymous. Appleton's Series.

For primary grade.

Indorsed.

1891

36. Blaisdell's "Child's Book of Health" (1886) revised.

Indorsed

37. Blaisdell's "How to Keep Well" (1885) revised.

Indorsed.

38. *Anatomy, Physiology, Hygiene.* Compiled under the direction of the State Board of Education of the State of California.

Anonymous.

For high schools.

1892

39. Blaisdell's "Our Bodies" (1884) revised. See also 1904.

Indorsed.

40. *The Essentials of Health*: a text-book on anatomy, physiology, hygiene, alcohol and narcotics.

By *Charles H. Stowell*, M.D.¹ Health Series.

For high schools. See also 1896.

Indorsed.

41. *A Primer of Health*: for primary classes, with special reference to the effects of alcoholic drinks and tobacco upon the human system.

By *Charles H. Stowell*, M.D.¹ Health Series.

For primary grade.

Indorsed.

¹ For personal data see 1897.

1893

42. *An Academic Physiology and Hygiene*: embracing special chapters on foods and their preparation ; water and other beverages ; air and ventilation ; the removal of waste matters ; exercise, rest, and recreation ; bathing and clothing ; hygiene of the special senses ; and the effects of stimulants and narcotics upon the human system.

By *Orestes Brands*, late Superintendent of Schools, Paterson, New Jersey. Author of "Lessons on the Human Body," "Health Lessons for Beginners," and "Good Health for Children ;" and *Henry C. Van Giesen*, A.M., M.D., Graduate of the College of Physicians and Surgeons, New York.

For high schools. Indorsed by five state commissioners of education and state boards of health.

43. *Edwards' Catechism of Hygiene*: for use in schools.

By *Joseph F. Edwards*, A.M., M.D., A Member of the State Board of Health of Pennsylvania, Editor of "The Annals of Hygiene," Foreign Associate Member of the Société Française d'Hygiène, Fellow of the College of Physicians of Philadelphia, Member of the Philadelphia County Medical Society, Member of the American Public Health Association, etc., etc., etc.

For grammar grades.

44. *Hygienic Physiology*: A text-book for the use of schools.

By *D. F. Lincoln*, M.D. Late Secretary Health Department of American Social Science Association, Author of "School and Industrial Hygiene," etc.

For high schools.

45. Stowell's "Healthy Body" (1888), revised. *Indorsed*.

1894

46. *Edwards' Hygiene with Anatomy and Physiology*: being an amplification of Edwards' "Catechism of Hygiene," Intended for schools and general reading.

By *Joseph C. Edwards*, A.M., M.D. Copyright by Catholic School Book Co.

For grammar or high school.

47. *Elementary Physiology.*

By *M. Foster*, M.A., M.D., F.R.S., Professor of Physiology in the University of Cambridge, and *Lewis E. Shore*, M.A., M.D., Fellow of St. John's College, Cambridge, and Senior Demonstrator of Physiology in the University of Cambridge.

For high schools. See also 1898.

48. *Second Book in Physiology and Hygiene.*

By *J. H. Kellogg*, M.D. Member of the American Medical Association, the American Public Health Association, Société d'Hygiène of France, British and American Association for the Advancement of Science, the American Society of Microscopists, the American Association for the Advancement of Physical Education, late Member of the Michigan State Board of Health, etc.

For high schools.

49. *The Human Body: a beginner's text-book of anatomy, physiology and hygiene, with directions for illustrating important facts of man's anatomy from that of the lower animals, and with special reference to the effects of alcoholic and other stimulants, and of narcotics.*

By *H. Newell Martin*, D.Sc., M.D., M.A., F.R.S., Professor of Biology in the Johns Hopkins University and *Hetty Cary Martin*. Fourth edition revised (see 1889).

For high schools. See also 1900.

Indorsed.

1895

50. *Hutchison's "Physiology and Hygiene"* (see 1884) revised. See also 1902.

Our Wonderful Bodies and How to Take Care of Them.

By *Joseph C. Hutchison*,¹ M.D.

51. First Book—For Primary Grades.

52. Second Book—For Intermediate and Grammar Grades.

1896

53. *Essential Lessons in Physiology and Hygiene: for schools.*

By *Winfred E. Baldwin*, M.D.

For high (or grammar) grades.

Indorsed.

54. *Primary Lessons in Human Physiology.*

By *Winfred E. Baldwin*, M.D.

For primary grades.

¹ For personal data see 1884.

55. Stowell's "Essentials of Health" (1892) revised.

Indorsed.

1897

56. *A Practical Physiology*: a text-book for higher schools.

By *Albert F. Blaisdell*, M.D.

For high or normal schools.

Indorsed.

57. *Applied Physiology*: including the effects of alcohol and narcotics.

By *Frank Overton*, A.M., M.D. Late House Surgeon to the City Hospital, New York.

For high schools.

58. *Standard School Physiology, Hygiene and Anatomy.*

By *Russell B. Smith*, M.D., *Westerly*, R. I., and *Everett C. Willard*, A.M., Superintendent of Schools, Stamford, Conn.

For high schools.

Indorsed

59. *A Handbook of Simple Experiments in Physiology.*

By *Charles H. Stowell*,¹ M.D. Late Professor of Histology and Microscopy, and Assistant Professor of Physiology, University of Michigan; Author of "Students' Manual of Histology," "Microscopical Diagnosis," "The Structure of the Teeth," "Essentials of Health," "A Healthy Body," "A Primer of Health," Editor of "The National Medical Review," "Practical Medicine," etc.¹

For high schools (or teachers).

1898

60. *Physiology: Experimental and Descriptive.*

By *Buel P. Colton*, A.M. Author of "Practical Zoology," and Professor of Natural Science in the Illinois State Normal University.

For high schools.

61. Foster's and Shore's "Elementary Physiology" (1894) revised. See 1901.

62. *Applied Physiology*: including the effects of alcohol and narcotics. 2 vols.

By *Frank Overton*, A.M., M.D.

For Intermediate Grades.

63. For Primary Grade.

¹ See also "Who's Who in America."

64. *Laboratory Exercises in Anatomy and Physiology.*

By *James Edward Peabody*, A.M., Instructor in Biology in the High School for Boys and Girls, New York City.
For high schools.

1899

65. *Advanced Lessons in Human Physiology and Hygiene:* for grammar, ungraded, and high schools.

By *Winfred E. Baldwin*, M.D., Author of "Essential Lessons in Human Physiology and Hygiene," etc.

For grammar and high schools. *Indorsed.*

66. *Physiology Illustrated by Experiment:* a briefer course.

By *Buel P. Colton*, A.M., Author of "Physiology, Experimental and Descriptive," "Practical Zoölogy;" and Professor of Natural Science in the Illinois State Normal University.

For high schools. *Indorsed.*

1900

67. *Physiology for the Laboratory.*

By *Bertha Millard Brown*, S.B., Instructor in Biology at the State Normal School at Hyannis, Mass. Formerly Assistant in Biology at Vassar College.

For high schools.

68. *Elementary Anatomy, Physiology and Hygiene:* for higher grammar grades.

By *Winfield S. Hall*, Ph.D., M.D. (Leipsic). Professor of Physiology, Northwestern University Medical School, Chicago. New Century Series.

For grammar grades. Under revision. *Indorsed.*

69. *Anatomy, Physiology and Hygiene for Schools.*

By *Henry F. Hewes*, A.B., M.D. (Harvard). Teacher in Physiological and Clinical Chemistry, Harvard University Medical School, Boston; Physician to Out-patients at the Massachusetts General Hospital, Boston. New Century Series.

For high schools. *Indorsed.*

70. *Lessons in Elementary Physiology.*

By *Thomas H. Huxley*, LL.D., F.R.S.

Edited for the use of American schools and colleges by

Frederic S. Lee, Ph.D., Adjunct Professor of Physiology in Columbia University.

For high schools. Contains no study of the effects of alcohol and narcotics.

71. *Graded Lessons in Hygiene.*

By *William O. Krohn*,¹ Ph.D. (Yale). Author of "Practical Lessons in Psychology," and Editor of "The Child Study Monthly."

For grammar or high schools.

72. *A General Physiology for High Schools.* Based upon the nervous system.

By *M. L. Macy*, L.B., Assisted by *H. W. Norris*, A.M., Professor of Biology, Iowa College.

For high schools.

73. *The Human Body.* A text-book of anatomy, physiology and hygiene.

By *H. Newell Martin*, D.Sc., M.D., M.A., F.R.S. Formerly Professor of Biology in the Johns Hopkins University and of Physiology in the Medical Faculty of the same.

Fifth edition revised with practical exercises by *George Wells Fitz*, M.D., Assistant Professor of Physiology and Hygiene in Harvard University. (See 1894).

For high schools.

Indorsed.

74. *Walker's Anatomy, Physiology and Hygiene* (1883) revised.

1901

75. *Foster's and Shore's "Elementary Physiology"* (see 1898) revised.

76. *The New Century Primer of Hygiene.* For fourth-year pupils.

By *Jeannette Winter Hall*, Special Teacher of Physiology [in the Public Schools], Berwyn, Ill. New Century Series.

For primary grade.

Indorsed.

77. *Intermediate Physiology and Hygiene.* For lower grammar grades.

By *Winfield S. Hall*, Ph.D., M.D. (Leipsic), Northwestern University Medical School, Chicago, and *Jeannette Winter Hall*, Special Teacher of Physiology in Berwyn, Ill. New Century Series.

For intermediate grades.

Indorsed.

¹ Professor of psychology and pedagogy, University of Illinois.

78. *Oral Lesson Book in Hygiene.* For primary teachers.
 By *Henrietta Amelia Mirick*, A.B. (Wellesley). Assistant Editor School Physiology Journal, Boston. New Century Series.
 For primary grades. *Indorsed.*
- 1902
79. *Life and Health.* A text-book on physiology for high schools, academies and normal schools.
 By *Albert F. Blaisdell*, M.D.
 For high schools. Adapted from "A Practical Physiology" (1897).
Indorsed.
80. *Elementary Physiology and Hygiene.*
 By *Buel P. Colton*, A.M., Author of "Physiology: Experimental and Descriptive," "Physiology, Illustrated by Experiment," "Practical Zoölogy," and Professor of Natural Science in Illinois State Normal University, Normal, Illinois.
 For grammar schools. *Indorsed.*
81. Hutchison's "Physiology and Hygiene" (see 1895) revised.
- 1903
82. *Elementary Hygiene for the Tropics.*
 By *Azel Ames*, M.D. (Harv. 1871). Late Major and Brigade Surgeon U. S. Vols.; Director of Vaccination, Military and Civil Sanitary Inspector, Department of Porto Rico.
 For grammar or ungraded schools. No temperance instruction.
83. *Physiology by the Laboratory Method:* for secondary schools.
 By *William J. Brinckerley*, Ph.D., Vice-president and Professor of Biology in Austin College, Effingham, Ill.
 2nd. ed.
 For high schools.
84. *An Elementary Physiology and Hygiene.* For use in schools.
 By *H. W. Conn*, Ph.D., Professor of Biology in Wesleyan University.
 For grammar or high schools.
85. *Practical Lessons in Human Physiology, Personal Hygiene, and Public Health, for Schools.*
 By *John I. Jegi*, M.S., Professor of Physiology and Psy-

chology, State Normal School, Milwaukee, Author of "Syllabus of Human Physiology."

For high schools.

86. *First Book in Hygiene.* A primer of physiology.

By *William O. Krohn*, Ph.D. (Yale). Author of "Graded Lessons in Hygiene," "Practical Lessons in Psychology," and Editor of "The Child Study Monthly."

For primary grade.

87. *Studies in Physiology, Anatomy, and Hygiene.*

By *James Edward Peabody*, A.M., Instructor in Biology in the Morris High School, New York City.

For high schools.

1904

88. Blaisdell's "Our Bodies" (1892) revised.

Indorsed.

89. *Introductory Physiology and Hygiene* for use in primary grades.

By *H. W. Conn*, Ph.D. Professor of Biology in Wesleyan University, and Author of "Elementary Physiology and Hygiene."

For primary grade.

90. *The First Book of Anatomy, Physiology, and Hygiene of the Human Body:* For pupils in the lower grades.

By *J. A. Culler*, Ph.D., Professor of Physics in Miami University, Oxford, Ohio.

For intermediate grades.

91. *The Second Book.*

For upper grammar grades.

92. *The Third Book.*

For high schools.

93. *Physiology and Hygiene for Children.*

By *Robert Eadie*, Principal of School 72, Borough of Queens, New York City, and *Andrew Eadie*, Professor of Physiology, Ontario Medical College for Women, Toronto, Canada.

For primary grade.

APPENDIX C.

INDORSEMENTS.

This indorsement is a sample of those printed in the earliest physiologies.

"We have examined the school text-book entitled—by—. As it faithfully teaches the nature of alcoholic drinks and other narcotics in connection with relative physiology and hygiene, and in language well adapted to grade, we heartily commend and indorse it for Primary Grade pupils or schools.

MARY H. HUNT.

Superintendent of the National Department of Scientific Instruction of the W. C. T. U.

ALBERT H. PLUMB, D.D., DANIEL DORCHESTER, D.D., HON. WILLIAM E. SHELDON, REV. JOSEPH COOK,	}	<i>Advisory Board for United States of America.</i>
---	---	---

One of the latest indorsements reads as follows :

We, the undersigned, have carefully examined the school text-book entitled—by—with reference to the following points :

1. Fulness and accuracy of subject-matter relating to the nature and effects of alcoholic drinks and other narcotics upon the human system.
2. Amount of matter on general hygiene.
3. Presentation of matter with regard to its adaptability to the class of pupils for which it is designed.

We are satisfied that on all of these points, as well as in the regular anatomy and physiology, the treatment is as complete as is required for a book of this grade, and fully in harmony with the results of the latest investigations. We therefore heartily indorse the book for High School grades or pupils.

Text-book Committee :	{	MRS. MARY H. HUNT, <i>World's and National Superintendent of Scientific Temperance Instruction for the Woman's Christian Temperance Union.</i>
		A. H. PLUMB, D.D.
		REV. JOSEPH COOK, LL.D.
		DANIEL DORCHESTER, D.D.
		WILLIAM A. MOWRY, PH.D.
		L. D. MASON, M.D.
		T. C. CROTHERS, M.D.
		CHAS. H. SHEPARD, M.D.
		GEORGE W. WEBSTER, M.D.

LIST OF INDORSED TEXT-BOOKS.¹

THE NEW CENTURY SERIES.

Anatomy, Physiology and Hygiene. For High Schools. By Henry F. Hewes, A.B., M.D., Instructor in Physiological and Clinical Chemistry, Harvard University Medical School.

Elementary Anatomy, Physiology and Hygiene. For Advanced Grammar Grades. By Winfield S. Hall, M.D., Ph.D., Professor of Physiology, Northwestern University Medical School, Chicago.

Intermediate Physiology and Hygiene. For Fifth and Sixth Year Pupils. By Winfield S. Hall, M.D., Ph.D., Professor of Physiology, Northwestern University Medical School, Chicago, and Jeannette Winter Hall, Special Teacher of Physiology, Berwyn, Ill.

Primer of Hygiene. For Fourth Year Pupils. By Jeannette Winter Hall, Special Teacher of Physiology, Berwyn, Ill.

Oral Lesson Book in Hygiene. For Teachers in the Three Primary Years. By Henrietta Amelia Mirick, Assistant Editor, School Physiology Journal, Boston.

THE PATHFINDER SERIES.

Hygienic Physiology. For High Schools. By Joel Dorman Steele, Ph.D.

Lessons in Hygiene. (Appleton Series.) For Advanced Grammar Grades.

Young People's Physiology. For Fifth and Sixth Year Pupils.

Child's Health Primer. For Fourth Year Pupils.

APPLETON'S AUTHORIZED SERIES.

Outlines of Anatomy, Physiology and Hygiene. For High Schools. By Roger S. Tracy, M.D., New York Board of Health.

Lessons in Hygiene. For Advanced Grammar Grades.

Young People's Physiology. (Pathfinder Series). For Fifth and Sixth Year Pupils.

Health for Little Folks. For Fourth Year Pupils.

¹ From "The School Physiology Journal," March, 1903.

THE BLAISDELL SERIES.

BY A. F. BLAISDELL, M.D.

Practical Physiology. For High Schools.

Life and Health. For High Schools.

Our Bodies and How We Live. For Advanced Grammar Grades.

How to Keep Well. For Fifth and Sixth Year Pupils.

Child's Book of Health. For Fourth Year Pupils.

THE ECLECTIC SERIES.

BY ELI F. BROWN, M.D.

Eclectic Guide to Health. For High Schools.

Youth's Temperance Manual. For Fifth and Sixth Year Pupils.

The House I Live In. For Fourth Year Pupils.

THE UNION SERIES.

Physiology and Health, No. 3. For Advanced Grammar Grades.

Physiology and Health, No. 2. For Fifth and Sixth Year Pupils.

Physiology and Health, No. 1. For Fourth Year Pupils.

THE COLTON PHYSIOLOGIES.

BY BUEL P. COLTON, A.M.

Physiology. Briefer Course. For High Schools.

Elementary Physiology and Hygiene. For Advanced Grammar Grades.

THE BALDWIN PHYSIOLOGIES.

BY W. E. BALDWIN, M.D.

Advanced Lessons in Human Physiology and Hygiene. For Advanced Grammar Grades.

Essential Lessons in Human Physiology and Hygiene. For Fifth and Sixth Year Pupils.

THE HEALTH SERIES.

BY C. H. STOWELL, M.D.

The Essentials of Health. For Advanced Grammar Grades and High Schools.

A Healthy Body. For Seventh and Eighth Year Pupils.

A Primer of Health. For Fourth Year Pupils.

THE DULANEY PHYSIOLOGIES.

Standard Physiology. For Fifth and Sixth Year Pupils.

Primer of Physiology. For Fourth Year Pupils.

MARTIN'S PHYSIOLOGY.

The Human Body and the Effect of Narcotics. For High Schools. By H. Newell Martin, M.D., late Professor of Biology in Johns Hopkins University.

SMITH-WILLARD PHYSIOLOGY.

Standard School Physiology, Hygiene and Anatomy. For High Schools. By Russell B. Smith, M.D., and Everett C. Willard, A.M.

Also indorsed formerly but not now:

BRAND'S PRIMARY AND INTERMEDIATE PHYSIOLOGIES.

Brand's Good Health for Children. For Primary Grades.

Brand's Health Lessons for Beginners. For Intermediate Grades.

DISCUSSION.

Dr. Leartus Connor, of Detroit:

We have rarely had presented a more thorough and scholarly consideration of this phase of the educational problem. It is gratifying to have these text-books brought into such correlation as to present this evolution in different states. It is a pity that the preparation of school-books is so frequently dominated by the commercial ideas of the publishers. They are prepared to sell, and they are sold generally by the recommendation of the school boards—a recommendation secured by the slick promoter of the commercial house. Rarely do they represent the facts in the case from the educators' standpoint. The school boards directly and indirectly too often are there for "graft," and so are a prey of the publisher. Through the selection of a text-book and, otherwise, a member of the school board impresses himself upon the superintendent, the superintendent upon the principals, the principals upon the teacher, and the teacher upon the scholar, while the scholar becomes the citizen. Thus the character of a school board exerts a direct influence for good or ill on every child by the operation of irrevocable laws. We will progress much faster when we pay more attention to the school board, to the superintendent of the public school, to the principal and to the teacher. No influence has been felt on my life equal to that exerted by teachers who took me as a little fellow into their confidence and life. The inspiration to something higher does not always come from the highest intelligence, but from a wholesome, truthful, loving, inspiring teacher.

The evolution of better text-books, better scholastic methods will be greater when larger intelligence, controlled by the single purpose of growing children into the best possible citizens, constitutes our school boards.

Dr. Delancey Rochester, of Buffalo :

For the last 10 or 15 years, physiology has been taught in our public schools to a greater or less degree of efficiency. Some 9 or 10 years ago I had the pleasure of being very enthusiastic in the way of presenting to this Academy a paper urging the teaching of physiology in the public schools. My study recently has convinced me that physiology as taught in the public schools is of no value to the pupil. This is because the teacher is a grade teacher, and having to teach arithmetic, geography, grammar, etc., knows little about physiology. It is difficult to get a properly instructed teacher in physiology for the salary. It would be much better to have physiology dropped out of the schools absolutely and entirely than to have the miserable attempt of the present day.

The medical inspection of public schools has been of value in certain cities, but because the inspectors are political appointees they are usually not of the highest grade in the profession. They do not see the pupils at the desk, because they are there for a short time and have a large number of schools to inspect. The careful study of the pupils, it seems to me, is a thing that should require a very thorough physician and we should put all our efforts to have the medical inspector not subject to change with change in the department of health. In that way we would get thoroughly competent men.

Dr. Henry O. Marcy, of Boston :

When we consider that our teachers are trained and equipped as never before, ought we not to be enthusiastic over the growth and development of medical science? When we come to the discussion of the danger from alcohol, tobacco and other narcotics, should we also not feel thankful that we are having text-books which are a great deal better than those of ten years ago; and, have we not with us some of the very men who are the authors of the books that we look upon with pride? I feel that we have been growing; in the first place, teaching the teacher, secondly, the pupil, and best and broadest of all, the generation. I am sure that we have very much to look forward to in the better training of the children that come after the children of to-day as the children of to-day have much better training than the children of our childhood.

Dr. J. M. Grosvenor, of Buffalo :

I do not know how broad a field it is expected that this discussion should occupy. The report consists mainly of a description of the laws that have been passed in the several states and a reference in general to the text-books in the schools on this subject. Certainly these laws have been an evolution and I believe these will be improved as the teaching advances. There was a slight criticism made in reference to the book used in the high school. If the book is beyond the comprehension of the scholars, that book ought to be improved. I am willing to leave this matter with the committee.

I cannot agree with the speaker who advocated doing away with the teaching of physiology in the public schools. I believe most thoroughly that it

ought to be taught to a certain extent. It is not necessary that it be taught in the same extensive way as it is taught in our medical colleges. If the teachers are not competent to teach physiology they ought to make themselves competent.

I wish to express my feeling of satisfaction in reference to this report, and I think it would be appropriate if this committee should be continued, because, I take it that the members of this Academy have not heard sufficiently upon this question. In fact, they have just begun its consideration. The more knowledge we can acquire from reports of this character the better for this Academy, the better for sociology in general, the better for our children and the better for ourselves.

Dr. Winfield S. Hall, of Chicago:

It is with peculiar pleasure that I appear in the discussion of this subject this morning, because I feel that in this report for practically the first time that it has come to my attention, the members of the committee who were given the responsibility of making the report have entered upon their work in the true scientific spirit and have proceeded carefully, judiciously and conscientiously and have given the Academy the benefit of what I consider the best and most unbiased report ever given on this subject. I think the Academy may well be proud of the broad stand they have taken.

Dr. Connor has brought up the question of subsidy as applied to school-books in general. I think the remarks of Dr. Connor might be just in certain cases.

Being the author of one of the text-books now under discussion it is due to the Academy as well as to myself and the publishing house that the facts regarding the publication of the New Century Series be known.

While in Wisconsin in 1900 I received from the Secretary of the American Medical Association a letter stating that he had been requested by a certain book publishing company of New York City to recommend a man able to write a text-book for seventh- and eighth-grade pupils which book should be thoroughly abreast of the times from a scientific point of view as well as from a pedagogic aspect. In further communication I said that I was willing to undertake the task with the understanding that I should be left absolutely free to make such presentation as at that time represented to me the science of physiology. My attention was called to the fact that not less than one-fifth of the book should be on the subject of hygiene with reference to alcohol and narcotics. I proceeded to prepare the book, and the author of the other two volumes for the fourth, fifth and sixth grades prepared her work in the school-room.

I must express to the committee my appreciation of the commendation given the elegant text-book prepared for high schools by Dr. Hewes, of Harvard University, for their commendation of the oral lesson book prepared for the use of the teacher also, for their commendation of the books for the fourth, fifth and sixth grades, prepared under my supervision.

The only adverse criticism on any book of the New Century Series is directed

against the book for the seventh and eighth grade, of which book I am the author. The committee will be interested to know that this same criticism came some time ago from an unexpected source, from the superintendent of this instruction in Boston, Mrs. Hunt, calling my attention to the fact that in my seventh- and eighth-grade book I had introduced the subject in a rather more technical way than could be comprehended by the pupils with the rather amateur instruction they had, the teachers themselves not being prepared.

The MS. of this book was presented to the seventh and eighth grades and seemed to be thoroughly understood by the pupils, but they had advantages possessed by very few, being taught by a teacher who had had extensive post-graduate work in physiology and biology. She had the means at hand to illustrate these subjects—chemic reagents, apparatus, models, charts, etc., etc. Presented under these conditions I am certain that the pupils fully understood it. It is possible that it would not be understood if presented under less favorable conditions, etc.

I accept this criticism in the friendly spirit in which it is given, and express my satisfaction that the criticism falls on me rather than upon any of the absent authors.

Inasmuch as a new edition of this book has been asked for, I shall take pains to go over again these technicalities and try to eliminate them. In this new edition of the book all the suggestions made by Dr. Putnam will be followed.

We must never lose sight of the fact that our books must be constantly revised. In the medical schools we must have new editions of our texts every two or three years. Why should we revise less frequently those of the public school?

Another important point has been brought up, and one on which the Academy may well pass a resolution, *viz.*, the preparation of teachers. Dr. Rochester has put the subject very strongly before us, and I think there are hundreds of medical men who feel that the presentation of these important subjects is more or less miscarrying because of the inefficiency of the teachers. We should ask the normal schools to prepare men and women to teach physiology.

The Academy would do well to pass resolutions setting forth its position upon the two points just mentioned: namely (1) the frequent revision of the school physiologies; and, (2) the proper preparation of teachers for the teaching of physiology and hygiene.

Dr. William R. White, of Providence:

I trust we shall unanimously vote that these partial reports be accepted and that the whole matter be allowed to remain in the hands of this same committee, which would naturally follow, and that all motions and recommendations of the last speaker be referred to the same committee to incorporate in their final report.

Dr. E. H. M. Sell, of New York:

I was much pleased with the reports as far as they went, and the few re-

marks that I may make are in reference to the furtherance of the subject. I would suggest to Dr. Putnam that she embrace in her report healthful living. If we believe that water is better than tea or coffee and teach it, the children should be taught to practise it. Are you a commandment-keeper, then you can teach commandment-keeping. The word "evolution" has been used in this discussion. We read that every kind shall produce its kind—no evolution there; a peach will remain a peach until you graft something else on to it. In that sense, I would not accept the term "evolution;" but, in the sense in which it has been used, *viz.*, development well and good. Our teachers must be taught. There are places for such teaching, and they should be sent there. If a teacher teaches that it is a disgrace to put alcohol into her system, she ought to practise it. I subscribe to the several important practical points of the papers, and I live them too.

Dr. J. N. Hall, of Denver:

I think Dr. Jackson¹ ought to receive credit for the matter of inspection of schools. I feel that when men of the caliber of the reader are willing to go to the trouble to carry out such a plan that there is a hopeful outlook for this whole matter of inspection of schools. I would dissent to the statement that most text-books are introduced by a greater or less corruptive influence upon the School Committee. I do not believe it. My father served for nearly a generation upon one of the New England school boards. It is still told how one man who attempted to influence the committee unduly was rebuked in such a way that a second attempt was not made. When we remember how many of our own profession serve in this capacity, and in my own city of Denver some of the most prominent medical men, I cannot believe that any such statement represents the facts.

Dr. T. D. Davis, of Pittsburg:

There is a practical aspect to this question from the educators' side. I do not want to object to a single word that has been said about the advantage of teaching certain things to the young of our country, but we must be careful about the method and not interfere with other great necessities of education. Each advocate of every new thing that comes along insists that special time and text-books must be granted to his fad! If this is done how are our teachers to get the time to teach the three R's? Drawing, singing, painting, basket-making, sewing, manual training and physical culture have their advocates and demand time. Temperance can and should be taught by being fundamental in the teachers' belief and practice, and if it is thus known and realized it will crop out on all occasions, whether they are teaching reading, writing or arithmetic, or something else. So with other great moral questions as well as certain nature studies. Our teachers should be qualified up to this standard. I do not believe that intemperance depends upon lack of knowledge. In over thirty years' experience with drinking persons I have never known such a case. We have too much of it among the medical profession to think that a lack of knowledge of the results has led to drink. It

¹ See paper in April, 1905, Bulletin.

is not knowledge that is going to save the young, but something broader, deeper, higher.

Dr. Helen C. Putnam, Chairman of the Committee, closing :

Personally, I should be very glad if this Academy would continue our committee to allow us to report upon the teaching of domestic science, physical training, etc. We still want a report upon the teaching of biology, so far as it includes hygiene, and we want still to report upon several sporadic methods concerning the teaching of hygiene. I think when all these facts are laid before you, the resolutions which may be passed in this Academy will be somewhat influenced by these facts.

OBSERVATIONS IN PASSING.

THE FUTURE OF THE AMERICAN ACADEMY OF MEDICINE.

This question has been raised once or twice lately by gentlemen, who, while eligible, are not members of the American Academy of Medicine: Is there at present any substantial reason for the continuance of the Academy? The requirements of the better medical schools and of the more exacting state license laws have removed largely the odium resting upon the American medical degree abroad. The work of advancing educational standards is now fostered with enthusiasm by those who are officially interested. Can not the other researches of the Academy be carried on as well, if not better, by some other medical organization, the American Medical Association being mentioned as an illustration.

The question is a fair one, and should be fairly met. A sentence from Dr. Oliver Wendell Holmes has often been quoted in discussions about the mission of the Academy. "I sometimes think," wrote he to John Lathrop Motley, "that it is the only absolute line of division between men,—that which separates men who hug the actual from those who stretch out their arms to embrace the possible." If one attempts to separate men by this line of division, it will soon be seen that the actual huggers are in the majority.

Some one else has said that all progress in the world is brought about by a dissatisfaction with present conditions and striving for an ideal. If we pay heed to the voice of the dissatisfied; the mass is merely grumbling; it remains for the few to strive. Senator Lodge, in his *Story of the Revolution*, says:

Men are slow to understand the presence of a new force and the coming of a great change. They are still slower to admit it when they know it, but meantime the movement goes on and in due time takes its revenge for a failure to recognize it.

From these statements, one can infer that the pioneer corps to the army of civilization bears the same numerical ratio to the troops of a similar name in an actual army. It is safe to carry the parallel a little farther. Mingle the scouts among the main division and they would create no impress; on the other hand,

detail the rank and file for exploring work ; howsoever excellent they may be, as pioneers they would fail.

Who are they that lead the advance? The dissatisfied ones—not necessarily discontented, but the dissatisfied. The men who think and plan for better things ; their thoughts are sometimes wild vagaries, and their plans would result in confounding confusion, but this is not always the result. Since progress must be made in this manner, and since there is danger of unbalanced hypotheses getting sway, it is of importance that the arms stretched out to embrace possibilities should clasp realities, and not fondle delusions. When it comes to social or economic progress, what class of the population would be most likely to seize the gold, and throw the glittering iron pyrites away? Those men, surely, who had learned something of the honorable in men ; who were instructed in the facts leading up to the present condition of the world, and who had been trained to look upon both sides of every question and to view it from center to the extreme limits of its periphery.

But what has all this to do with the American Academy of Medicine? Many a medical man has been humiliated when abroad at the estimation (or the lack of it) placed upon the medical education in the United States. It remained for Robert Lowry Sibbet to formulate a scheme to remove the odium. It is true that his did not work as he planned and in this sense failed. But, like many another failure, only to accomplish more than he dreamed, for it became an organization which witnessed the installation of the betterment of medical education, a thing for which the American Medical Association labored long and had failed and had relaxed its efforts. It is for others to say whether the Academy helped to bring this about or not ; it certainly was the fore-runner of it.

At the meeting of the Academy, at Detroit, in 1892, it was suggested that the crying voice was no longer needed, and the prophet of the wilderness could suffer decapitation, and be honored by an epitaph. Again, a man with a keen eye, and a long arm, reached up into the clouds and grasped what he called Medical Sociology, almost an unknown thought until then. Again the fore-runner was needed, and now most of our medical societies are dis-

cussing similar topics at times. Let it be noted by the way that both these men were college-bred, and by small colleges—one in Pennsylvania, the other in New England.

Then the Academy has grown and its last meeting was its best ; its healthy activities might be used as an argument for its continued growth. But why of college men ? The careful student of contemporary history sees that medical education and the political status of the physician are not yet so firmly established as to be beyond the possibility of a successful attack for their overthrow. The strength of a chain is its weakest link. Societies, whose membership is open to the legalized practiser are composed of men of integrity and high aims for the most part. They also contain those who from choice possess the minimum amount of the minimum requirements, and the society can not denounce itself. The Academy must consist of the academically trained and has a mission as an old guard, and every eligible who values the dignity of his profession should seek membership.

But again, it is desirable that the average physician should have a college training, and that fact be emphasized by a society limiting its membership very largely to college graduates,—and this, too, should the college graduate possess a smaller amount of knowledge than his fellow physician.

Simon Newcomb in his "Reminiscences of an Astronomer" in speaking about a companion at Harvard, says :

Had he entered public life at Washington, and any one had told me that he was guilty of a dishonest act, I should have replied, "You might as well tell me that he picked up the Capitol last night and carried it off on his back." The fact that one could say so much of any man, I have always looked upon as illustrating one of the greatest advantages of having a youth go through college. The really important results I should look for are not culture or training alone, but include the acquaintance of a body of men, many of whom are to take leading positions in the world, of a completeness and intimacy that can never be acquired under other circumstances. The student sees his fellow students through and through as he can never see through a man in future years.

Herbert J. Hapgood, the man who has an agency to supply positions,—a service for business corresponding to the "Intelligence Bureau" for household servants,—publishes in *System*, a periodical devoted to matter-of-fact business, an article favoring

the college training as of value to a business life ; in this he says :

As old Gorgon Graham says in his inimitable letters, " anything that trains boys to think, and to think quick pays." This is exactly what a college education does. It teaches a man very few things that he can make use of in business, but it teaches him how to acquire knowledge of new things and to acquire it quickly. It does not give him brains ; it teaches him how to use what brains he has.

A college education is to educate rather than to give mere instruction—and Marion Crawford, in "*Via Crucis*," makes the following distinction between them :

The object of mere instruction is to impart learning for some distinct purpose, but most chiefly, perhaps, in order that it may be a means of earning a livelihood. The object of education is to make men, to produce the character of the man of honor, to give men the inward grace of the gentleman, which cannot manifest itself outwardly save in good manners, modesty of bearing and fearlessness.

But two more quotations, the first from President Hadley, of Yale, in an article in April (1905) *Century*:

" The Bachelor's degree," says a French observer, " is a social rather than a pedagogical institution." These words touch the very heart of the matter. The college course is not valued solely or even primarily for its studies ; it is valued most of all for the associations into which it brings the students and the graduates. These associations are just as important to the boys who like study and do a great deal of studying, as they are to the boys who dislike study and do as little of it as they can.

The second from President Hyde, of Bowdoin (God's Education of Man):

One may become an educated man without going to school or college, for learning is not confined exclusively to academic walls. Home study, the stress of public life, the responsibilities of business, the pursuit of art and letters, may give a man an education entirely apart from the schools. Yet the people who get a thorough education in these extra academic ways are few. The education thus gained is apt to be one-sided, out of relation to current modes of thought, and hence, in a measure, socially inapplicable and ineffective.

This varied testimony agrees in this—that there is an imponderable power in a college training, over and beyond the instruction given, that makes the course valuable to the physician as a man of affairs, and it is worth while to maintain the entrance requirement of the Academy to emphasize this, while every college-bred physician, who possesses any college spirit, should desire to participate.

Without dwelling unduly upon the college training it might be noted, that college graduates are making a large proportion of the sociologic investigations of the day; and the exercise of discussing questions in an academic manner, especially fits one to enter upon such investigations.

Now for the other phase—should the Academy continue to develop the field of medical sociology? Not in a spirit of braggadocio will we attempt to defend this thesis: "No medical society can discuss questions on medical sociology as well as the American Academy of Medicine can." (For the sake of clearness note, it is not said as the American Academy of Medicine *does*, there is no desire to make comparisons.)

Questions in social medicine are complex. For example—what effect has school life on the refractive state of the eye? This question which has been under investigation for a number of years by ophthalmologists, and seems at first glance a question that concerns them alone, requires other experts as soon as attempts are made to prevent any harm resulting to the eye. Thus there is required the assistance of the sanitarian to solve the problems of ventilation and lighting; of the orthopedist perhaps, since scoliosis is now asserted to result because of ametropia, of the neurologist, the pediatricist, and by no means the least important, the physician of the home, who can speak authoritatively of the home life of the pupil. In every other medical society now organized these subjects are discussed by the specialists making up the society or the section; occasionally, by the union of two sections. The others who are interested are either not members of the special society or are busy in other subjects in their own section, and the discussions, valuable as they are, lack completeness. In the Academy, on the other hand, the specialty is social medicine, and men from every limitation of practice meet on the common platform and discuss the question from every side. Nor does the Academy conflict with the narrower, and possibly deeper, discussions—one complements the other, and it is helpful for men whose routine of practice limits their studies, to meet men of similar limitations in different fields and discuss the subject broadly, rather than intensely. Should the speakers fit President Butler's description of

an educated man, "Broad men sharpened to a point," there will be intensity as well as breadth.

It would be possible to organize a society to discuss these questions of social medicine, but until such a society is organized, the Academy is best fitted of all the existing societies for this class of investigation from its very composition.

Briefly then, the contention is that the American Academy of Medicine is doing a work that cannot be done as well by any other society now organized. That the work complements the discussion on social medicine topics by other societies, and in no wise antagonizes them. That its qualifications for membership are helpful in producing the type of mind adapted for the work assumed. That, notwithstanding the advanced requirements for the medical degree, it is for the welfare of the profession to recruit its ranks from the college-trained, and in each view, the Academy merits the support of every liberally educated physician in the land. There is only one danger in such an organization, the magnifying a college degree rather than valuing the thing symbolized by it. The Academy has provided against this, and men who have secured that which is symbolized by the degree are presented by the council to the Academy for membership when, in its opinion, the training may be considered as fairly equivalent.

LITERATURE NOTES.

MALFORMATIONS OF THE GENITAL ORGANS OF WOMAN. BY CH. DEBIERRE, Professor of Anatomy in the Medical Faculty at Lille, with 85 illustrations. Translated by J. HENRY C. SIMES, M.D., Emeritus Professor of Genito-urinary and Venereal Diseases in the Philadelphia Polyclinic. Philadelphia: P. Blakiston's Son & Co. 1905. 182 pp. Price, \$1.50 net.

The author, in his preface, quotes Saint Hilaire: "All physical science depends essentially upon two facts: the particular facts, which are revealed by observation, the general facts which are discovered by reasoning; together they increase and mutually animate all studies." He has carefully collected a large number of observed facts connected with his subject, and has used his reasoning faculty to make them of value. It is the exception which proves trying in one's experience, and this little volume

can find its place with profit on the shelves of any physician, who, when he meets a malformation, may want the information it contains promptly. The English rendering is smooth and idiomatic, and the mechanical part worthy of its publishers.

THE DIARY OF A LATE PHYSICIAN, being a new edition of selected passages.

BY SAMUEL WARREN, D.C.L., F.R.S., arranged by CHARLES WELLS MOULTON. 1905. The Saalfeld Publishing Co. 379 pp.

This is the sixth volume of the Doctors Recreation Series, and it is difficult to say in which the editor of the series is to be the more congratulated, upon the addition he has made to our literature, or for putting into our hands, volumes now out of print and worthy of a place on our shelves. Samuel Warren's ten thousand a year and the diary of a late physician were famous in their day. For the purpose of the series, it is possibly wise to select the passages for the present volume, as times have changed since the diary first appeared in *Blackwood*, and only the bibliophile will sigh for an unabridged edition, and this not for its superior excellence, but for the possession of the whole and not the part. The printer maintains the excellent appearance of the earlier volumes in each successive issue.

REPORTS OF BOARDS OF EXAMINERS.

- I. ANNUAL REPORT OF THE BOARD OF MEDICAL EXAMINERS OF MARYLAND TO THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL 25, 1905.
- II. ELEVENTH ANNUAL REPORT OF THE BOARD OF REGISTRATION IN MEDICINE (OF MASSACHUSETTS) FOR THE YEAR ENDING, DECEMBER 31, 1904.
- III. OHIO STATE BOARD OF MEDICAL REGISTRATION AND EXAMINATION, NINTH ANNUAL REPORT, 1904.

I. The Maryland report presents various items of interest, that on reciprocity being the most prominent. Maryland is making the endeavor to secure reciprocal recognition of its license in as many states as possible. We confess we liked the plan which Maryland employed, when it could recognize the license of another state at its own valuation and supplement with partial examination before issuing a Maryland license, and could do this regardless of any reciprocal action by the other state. To our mind this is the more desirable plan.

It would seem that Maryland's law needs another revision. If the tinkers would only stop their patching when laws are presented, much future trouble would be saved.

II. The Massachusetts report gives the results of the examinations which will appear in another number of the Bulletin, and the proceedings of the board for the year. The Massachusetts law, while not as specific in its statements as the laws of some other states, is an excellent working law, enabling the board to exercise a just oversight of those who propose to enter upon the practice of medicine in that commonwealth.

III. The Ohio report not only mentions the results of the examinations, and the general transactions of the board, but it also records the prosecutions for illegal practice. This is a function that should be placed upon all boards, for as long as an unlicensed person is permitted to prescribe for a reward, so long does the law fail to properly protect the citizens.

The *Arena* exploits a school of thought which should be studied by every man of affairs. It is not always safe in its council, it is not always demonstrably accurate in its statements. It advocates innovations, which may or may not be reforms, and where its premises are accepted as always true can possibly do harm by the conclusion that may be reasoned from its arguments. For a man of affairs not to keep informed of this class of literature is to hide one's head in the sand. In addition to these it has many articles of interest conservatively sound.

In the light of the recent political revolution in Philadelphia, the articles by Rudolph Blankenberg are of especial interest. The mayor of Philadelphia has asked Mr. Blankenberg to be one of his advisory council of fourteen—an unofficial body he has created to give advice in the present crisis.

BULLETIN

OF THE

American Academy of Medicine.

VOL. VII.

ISSUED AUGUST, 1905.

No. 2.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or address published in the BULLETIN.

STATE LICENSURE FOR THE PRACTICE OF MEDICINE, 1904.¹

BY CHARLES MCINTIRE, A.M., M.D., Secretary of the Academy.

PART I—EXAMINATION RESULTS.²

The compiler of the statistics given in this report wishes again to express his indebtedness to the many who have assisted him in making this report as accurate and complete as it is. It is gratifying that, for the most part, those who are in a position to give authentic information, esteem these reports as prepared for the benefit of the profession, and give freely of their services to permit their preparation. It is to be regretted that some do not coincide in this opinion and either ignore the requests that are made, or wish to make it an occasion of profit to some one employed in their offices. A much needed feature in every medical practice act is a section compelling full publication of the results of all examinations, omitting, possibly, the names of those who fail to pass.

In preparing the previous reports, the tabulation were submitted to the executive officer of each board for verification. This has been done this year and, in addition, the tabulations for each college have been sent to the dean or the secretary of the faculty for inspection and criticism. Where an error has been claimed, it has been investigated. Where an explanation has

¹ Report prepared to present to the American Academy of Medicine at its meeting in Chicago, November 9 and 10, 1905.

² Part II the legal requirements to enter upon practice, will be published in the October number.

been made or an exception taken it has been noted. In all cases where the proper official has taken no notice of the figures submitted, that fact is noted.

Last year, and again this, the *Journal of the American Medical Association* has vied with the Bulletin in publishing a tabulated statement of the same facts. Last year the two reports did not always agree, and was the cause of quite a controversy in the local press in one instance at least. It is hard to assign a reason for any discrepancy between the two reports and only illustrates the great difficulty in obtaining exactness in an investigation of this kind.

In fairness to the various medical schools the limitations of the report should be plainly stated. 1. It makes no attempt to trace the graduates of any school in a state where a diploma is accepted; it is the results of the examinations before a state board that are given. Colleges situated in states where a diploma is accepted will be apt to have a higher percentage of failures, than if all the graduates were required to take an examination. 2. The figures are not limited to the last graduating class, the failure may be of an old graduate grown rusty on the foundation studies. It is impossible to secure this information in every instance, but it is noted when furnished by the colleges. 3. It is possible for the same applicant to be responsible for several failures. A year or two ago in looking over the records of the medical council of Pennsylvania, a memorandum opposite one return indicated that it was the *seventh* examination. This person was chargeable for six failures for his college in a period of not less than three years. Keeping these facts in mind, and also remembering that they affect all colleges alike, the figures as published present useful information, and may call the attention of those who are interested to heretofore unknown weakness.

The tabulation as presented first gives the totals by states, and then the details by colleges arranged by states.

In naming the college, if it claims any connection with a university or academic college, that name is given and not the special name of the school itself. Thus it is University of Chicago and not Rush; Bowdoin and not the Maine Medical School. There may be one or two exceptions to this rule where the claimed affiliation is with a college situated in a different state.

A. THE RESULTS BY STATES.

	Passed.	Failed.	Total.	Per cent. licensed.
Alabama ¹	118	20	138	85.5
Arizona ²	28	9	37	75.7
Arkansas ¹	115	37	152 ³	75.6
California ⁴	218	84	302	72.2
Colorado ⁵	...	...	...	...
Connecticut ²	68	25	93	73.1
Delaware ²	10	1	11	90.9
District of Columbia ²	77	14	91	84.6
Florida ⁶	4	0	4	10.0
Georgia ²	110	4	114	96.4
Idaho ²	23	17	40	57.5
Illinois ²	733	35	768	95.4
Indiana ²	150	22	172	87.2
Indian Territory ⁵	...	...	...	...
Iowa ²	227	43	270	84.1
Kansas ²	52	9	61	85.2
Kentucky ⁷	4	6	10	40.0
Louisiana ⁸	119	21	140	85.0
Maine ²	67	8	75	89.3
Maryland ²	115	55	170	67.6
Massachusetts ⁹	320	77	397	80.6
Michigan ²	53	1	54	98.1
Minnesota ²	134	29	163	82.2
Mississippi ¹⁰	119	130 ¹⁰	249	47.8
Missouri ¹¹	83	19	102	81.3

¹ Data furnished by the *Journal of the American Medical Association*.

² Report as furnished or revised by the secretary of the board.

³ This probably does not include the examination before the homeopathic or eclectic boards—no replies could be obtained to letters addressed to them.

⁴ The official California year is from August through July which may explain some apparent differences in figures sent out by this board.

⁵ Licenses upon presentation of diploma.

⁶ One district only.

⁷ Report furnished by secretary of the board, graduates of Kentucky medical schools matriculated before passage of present act, are entitled to registration without examination. This accounts for the small number reported.

⁸ Report furnished by secretary of the board—no reply from homeopathic board.

⁹ Prepared from published report.

¹⁰ Fifty-nine of these are confessedly undergraduates. Correspondence with the colleges show that many of the failures attributed to the colleges, should be attributed to undergraduates.

¹¹ Computed from a tabulation submitted to the secretary of the board and approved by him. The graduates of medical schools in the state are, at present, entitled to registration upon presentation of a diploma—all state schools are excluded from the estimate. This in Missouri probably makes the total failing too small, as some Missouri schools were charged with failures. These must have been undergraduates and should have been so classified.

	Passed.	Failed.	Total.	Per cent. licensed.
Montana ¹	21	12	33	63.6
Nebraska ¹	93	7	100	93.0
New Hampshire ¹	30	10	40	75.0
New Jersey ²	76 ³	20	96	79.1
New Mexico ⁴	...	...	...	...
New York ⁵	666	62	728	91.4
Nevada ⁴	...	...	...	...
North Carolina ¹	75	22	97	77.3
North Dakota ¹	55	15	70	78.6
Ohio ¹	238	13	251	94.8
Oklahoma ⁶	30	36	66	45.4
Oregon ¹	71	9	80	88.7
Pennsylvania ¹	460	118	578	79.6
Rhode Island ¹	52	6	58	89.6
South Carolina ¹	49	7	56	87.5
South Dakota ¹	36	9	45	80.0
Tennessee ¹	117	32	149	78.5
Texas ⁶	101	87	188	53.7
Utah ¹	31	7	38	81.6
Vermont ¹	54	2	56	96.4
Virginia ¹	119	55	174	68.4
Washington ¹	63	19	82	76.8
West Virginia ¹	163	40	203	80.3
Wisconsin ¹	53	3	56	94.6
Wyoming ⁴	...	...	...	...
Total.....	5600	1257	6857	81.6

A brief analysis of the table may be interesting. That it may be studied the more readily, it is rearranged in the order of the percentage of licensures. In this table those states which permit the examination of applicants who have not a diploma in medicine are printed in italics.

Name of state.	Per cent. licensed.	Name of state.	Per cent. licensed.
<i>Oklahoma</i>	45.4	Idaho.....	57.5
<i>Mississippi</i>	47.8	Montana.....	63.6
<i>Texas</i>	53.7	Maryland.....	67.6

¹ Report as furnished or revised by the secretary of the board.

² Prepared from official file.

³ In addition to those examined, New Jersey licensed 68 others, 63 upon presentation of a New York license, 4 of one from Illinois, and 1 on a New Hampshire license.

⁴ Licenses upon presentation of diploma.

⁵ For fiscal year ending July 31, 1904. Computed from official documents.

⁶ Data furnished by the *Journal of the American Medical Association*.

Name of state.	Per cent. licensed.	Name of state.	Per cent. licensed.
Virginia	68.4	Average for all states	81.6
California.....	72.2	District of Columbia...	84.6
Connecticut.....	73.1	Louisiana.....	85.0
New Hampshire.....	75.0	Kansas	85.2
Arkansas.....	75.6	Alabama	85.5
Arizona.....	75.7	Indiana.....	87.2
Washington.....	76.8	South Carolina.....	87.5
North Carolina.....	77.3	Oregon	88.7
Tennessee.....	78.5	Maine	89.3
North Dakota.....	78.6	Rhode Island.....	89.6
New Jersey	79.1	Delaware.....	90.9
Pennsylvania.....	79.6	New York	91.4
South Dakota.....	80.0	Nebraska	93.0
West Virginia.....	80.3	Wisconsin	94.6
Massachusetts.....	80.6	Ohio.....	94.8
Missouri	81.3	Illinois.....	95.4
Utah.....	81.6	Georgia.....	96.4
Minnesota	82.2	Vermont.....	96.4
Iowa.....	84.1	Michigan	98.1

It would not be fair to infer that Oklahoma was the most severe and Michigan the most lenient board from the facts set forth in this table. One would naturally expect that those states which admit non-graduates to an examination will have the smallest percentage of licenses issued if many non-graduates apply for an examination, for as will be seen later on the proportion of non-graduates rejected is high, and our *a priori* reasoning is borne out in part.

In Idaho and Montana, the boards are making strenuous efforts to advance the general professional standing of the profession, which was not up to the standard when these states were wilder and woollier.

These explanations are enough to illustrate the possibility of local conditions, which must be taken into consideration—others might be mentioned, California doubtless has many applicants from those who seek its climate for their own health, many of whom are not in condition to brush up on the foundation subjects. New York's high proportion is due to the high requirements necessary to take an examination, while New Jersey, with equally high requirements, accepts the license already possessed granted by another state, and makes its proportion of rejection higher

than it would be otherwise. It is a fair conclusion, after examining all the conditions that the examinations are surprisingly uniform, and while the laws are far from perfect, the practical outcome is the protection of the citizens by keeping out of practice unfit physicians.

B. THE RESULTS BY COLLEGES.

NOTE—To avoid misunderstanding keep in mind that the official returns of New York are for the Board year (parts of 1903 and 1904) and not strictly for 1904.

Alabama.

BIRMINGHAM MEDICAL COLLEGE, Birmingham.

B. L. Wyman, M.D., Dean. Graduates in 1904, 5.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	3	0	3
Percentage passed, 100.			

UNIVERSITY OF ALABAMA, Mobile.

George E. Ketcham, M.D., Dean. Graduates in 1904, 38.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	34	1	35
Mississippi ³	1	3	4
Missouri.....	0	1	1
South Dakota.....	1	0	1
Texas ²	0	1	1
Total.....	36	6	42
Percentage passed, 85.7.			

Arkansas.

UNIVERSITY OF ARKANSAS, Little Rock.

F. L. French, M.D., Secretary. Graduates in 1904, 19.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arkansas ²	1	1	2
Mississippi ³	1	0	1
Total.....	2	1	3
Percentage passed, 66.7.			

¹ No reply from dean.

² Figures unofficial.

³ Unofficial; failures may be undergraduates.

California.

CALIFORNIA MEDICAL COLLEGE, San Francisco.

D. MacLean, M.D., Dean. Graduates in 1904, 8.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	3 ¹	4
Washington.....	0	3	3
Total.....	1	6	7

Percentage passed, 14.3.

COLLEGE OF PHYSICIANS AND SURGEONS, San Francisco.

D. A. Hodghead, M.D., Dean. Graduates in 1904, 28.

State Examinations.

	Passed.	Failed.	Total.
California	15	12 ²	27
Oregon.....	1	1	2
Washington	1	0	1
Total.....	17	13	30

Percentage passed, 56.7.

COOPER MEDICAL COLLEGE, San Francisco.

Henry Gibbons, Jr., M.D., Dean. Graduates in 1904, 44.

State Examinations.

	Passed.	Failed.	Total.
California.....	39	4 ³	43
Oregon.....	3	0	3
Washington	1	0	1
Total.....	43	4	47

Percentage passed, 91.5.

HAHNEMANN MEDICAL COLLEGE, San Francisco.

James W. Ward, M.D., Dean. Graduates in 1904, 8.

State Examinations.

	Passed.	Failed.	Total.
California.....	7	1	8

Percentage passed, 87.5.

¹ One conditioned.² Of the class of 1904, 15 applied for examination, 8 passed on first trial, and 2 on the second.—*Drawn*.³ One of class 1903.

OAKLAND COLLEGE OF MEDICINE AND SURGERY, Oakland.
Edward N. Ewer, M.D., Registrar. Graduates in 1904, 0.

UNIVERSITY OF CALIFORNIA, San Francisco.

Arnold A. D'Ancona, M.D., Dean. Graduates in 1904, 27.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	34	2	36
Percentage passed, 95.			

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles.

Walter Lindley, M.D., Dean. Graduates in 1904, 24.

State Examinations.

	Passed.	Failed.	Total.
Arizona.....	3	0	3
California.....	21	4	25
Idaho.....	0	1	1
Ohio.....	1	0	1
Total.....	25	5	30
Percentage passed, 83.3.			

Colorado.

DENVER HOMEOPATHIC COLLEGE, Denver.

James P. Willard, M.D., Dean. Graduates in 1904, 6.

UNIVERSITY OF COLORADO, Boulder.

Luman M. Griffin, M.D., Dean. Graduates in 1904, 17.

*State Examinations.*¹

	Passed.	Failed.	Total.
Michigan.....	1	0	1
Oregon.....	1	0	1
Texas ²	1	0	1
Utah.....	1	0	1
Washington.....	1	0	1
Wisconsin.....	1	0	1
Total.....	6	0	6
Percentage passed, 100.			

UNIVERSITY OF DENVER, Denver.

S. G. Bonney, M.D., Dean. Graduates in 1904, 32.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona.....	1	0	1
Arkansas ²	1	0	1
California.....	1	0	1

¹ No reply from dean.

² Unofficial.

	Passed.	Failed.	Total.
Idaho.....	3	0	3
Iowa	1	0	1
Kansas.....	1	0	1
Oregon.....	1	0	1
Utah	5	0	5
Washington	1	1	2
Total.....	15	1	16

Percentage passed, 94.

Connecticut.

YALE, New Haven.

Herbert E. Smith, M.D., Dean. Graduates in 1904, 23.

*State Examinations.*¹

	Passed.	Failed.	Total.
Connecticut.....	17	1	18
Massachusetts	3	0	3
New Jersey.....	1	0	1
New York.....	9	0	9
Pennsylvania	1	0	1
Rhode Island	2	0	2
South Dakota.....	1	0	1
Total.....	34	1	35

Percentage passed, 97.1.

District of Columbia.

COLUMBIAN UNIVERSITY, Washington.

W. F. R. Phillips, M.D., Dean. Graduates in 1904, 52.

*State Examinations.*¹

	Passed.	Failed.	Total.
District of Columbia.....	38	0	38
Illinois.....	1	0	1
Indiana.....	1	0	1
Louisiana.....	1	0	1
Maryland.....	7	2	9
New York.....	2	0	2
North Carolina.....	1	0	1
Ohio	2	0	2
Pennsylvania	2	0	2
Virginia.....	4	0	4
West Virginia.....	2	0	2
Total.....	61	2	63

Percentage passed, 96.8.

¹ No reply from dean.

GEORGETOWN UNIVERSITY, Washington.

George M. Kober, M.D., Dean. Graduates in 1904, 32.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	0	1
District of Columbia.....	15	2	17
Illinois.....	1	0	1
Indiana.....	1	0	1
Maryland.....	2	0	2
Massachusetts.....	6	0	6
New Jersey	1	0	1
New York.....	3	0	3
North Carolina.....	0	1	1
Pennsylvania	1	0	1
Rhode Island	1	1	2
Washington	4	0	4
	36	4	40

Percentage passed, 90.

HOWARD UNIVERSITY, Washington.

Robert Reyburn, M.D., Dean. Graduates in 1904, 38.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	0	2	2
California.....	1	0	1
District of Columbia.....	6	6	12
Maryland.....	0	1	1
Mississippi ²	0	1	1
Montana	0	1	1
New Jersey.....	1	0	1
New York.....	1	1	2
North Carolina.....	0	1	1
Ohio	4	0	4
Pennsylvania	4	0	4
South Carolina.....	3	0	3
Virginia.....	0	2	2
West Virginia... ..	5	0	5
Total.....	25	15	40

Percentage passed, 62.5.

¹ Not official.² Not official—may not be an alumnus.

Georgia.

ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS, Atlanta.

W. S. Kendrick, M.D., Dean. Graduates in 1904, 31.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	3	0	3
Arkansas ²	1	0	1
Georgia.....	24	0	24
Louisiana.....	1	0	1
Mississippi ²	1	1	2
North Carolina.....	1	1	2
Pennsylvania.....	0	1	1
South Carolina.....	3	0	3
Tennessee.....	1	2	3
Washington.....	2	0	2
Total.....	37	5	42

Percentage passed, 88.1.

GEORGIA COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Atlanta.

W. M. Durham, M.D., Proctor. Graduates in 1904, 17.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	2	1	3
Georgia.....	18	0	18
Washington.....	0	1 ⁴	1
Total.....	20	2	22

Percentage passed, 90.9.

UNIVERSITY OF GEORGIA, Augusta.

De Saussure Ford, M.D., Dean. Graduates in 1904, 26.

*State Examinations.*¹

	Passed.	Failed.	Total.
Georgia.....	27	0	27
South Carolina.....	3	0	3
Tennessee.....	0	1	1
Total.....	30	1	31

Percentage passed, 96.8.

¹ No reply from dean.² Unofficial.³ Unofficial—may not be a graduate.⁴ Class of 1902.

Illinois.

AMERICAN COLLEGE OF MEDICINE AND SURGERY, Chicago.

J. A. Haynes, M.D., Registrar. Graduates in 1904, 23.

State Examinations.

	Passed.	Failed.	Total.
Illinois	20	2	22
Indiana	1	0	1
Pennsylvania	2	0	2
Total.....	23	2	25

Percentage passed, 92.

AMERICAN MEDICAL MISSIONARY COLLEGE, Chicago, and Battle Creek, Mich.

E. L. Eggleston, M.D., Secretary, Battle Creek. Graduates in 1904, 21.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	0	1
Illinois	3	0	3
Iowa	1	0	1
Montana.....	1	0	1
Ohio	1	0	1
Oklahoma ²	0	1	1
Pennsylvania	2	0	2
Vermont	1	0	1
Washington.....	1	0	1
Wisconsin.....	1	0	1
Total.....	12	1	13

Percentage passed, 92.3.

BENNETT COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Chicago.

A. L. Clark, M.D., Dean. Graduates in 1904, 10.

*State Examinations.*¹

	Passed.	Failed.	Total.
Illinois	10	0	10
Indiana.....	1	0	1
Iowa	1	0	1
Minnesota.....	1	0	1
North Dakota.....	0	1	1
South Dakota.....	2	0	2
Washington.....	1	0	1
Total.....	16	1	17

Percentage passed, 94.1.

¹ No reply from dean.² Not official.

CHICAGO HOMEOPATHIC MEDICAL COLLEGE, Chicago.

W. M. Stearns, M.D., Dean. Graduates in 1904, 37.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona.....	1	0	1
California....	3	0	3
Illinois.....	28	1	29
Indiana.....	5	0	5
Iowa	1	2	3
Kansas.....	1	1	2
Minnesota.....	1	0	1
Missouri.....	1	0	1
New York.....	1	0	1
North Dakota.....	0	1	1
Texas ²	1	0	1
Utah	1	0	1
Washington	4	0	4
Wisconsin	3	0	3
Total.....	51	5	56

Percentage passed, 91.0.

COLLEGE OF MEDICINE AND SURGERY, Chicago.

Florence Dressler, M.D., Secretary. Graduates in 1904, 11.

*State Examinations.*¹

	Passed.	Failed.	Total.
Illinois.....	11	4	15
Minnesota.....	1	1	2
Utah.....	0	1	1
Total.....	12	6	18

Percentage passed, 66.7.

DEARBORN MEDICAL COLLEGE, Chicago.

L. Blake Baldwin, M.D., Dean. Graduates in 1904, 17.

State Examinations.

	Passed.	Failed.	Total.
Illinois.....	18	0	18

HAHNEMANN MEDICAL COLLEGE, Chicago.

W. Henry Wilson, M.D., Registrar. Graduates in 1904, 49.

State Examinations.

	Passed.	Failed.	Total.
Illinois	38	1	39
Indiana.....	2	0	2

¹ No reply from dean.² Not official.

	Passed.	Failed.	Total.
Iowa	4	0	4
Maine.....	1	0	1
Massachusetts.....	1	0	1
Minnesota	3	0	3
Nebraska.....	1	0	1
Oklahoma ¹	1	0	1
Oregon.....	1	0	1
Texas ¹	1	0	1
Total.....	53	1	54
Percentage passed, 96.3.			

HARVEY MEDICAL COLLEGE, Chicago.

Frances Dickinson, M.D., Dean. Graduates in 1904, 18.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	1	0	1
Illinois	16	2	18
Indiana.....	1	0	1
Missouri.....	1	0	1
Oregon.....	2	0	2
South Dakota.....	1	0	1
Washington.....	0	1	1
Total.....	22	3	25
Percentage passed, 88.8.			

HERING MEDICAL COLLEGE, Chicago.

R. N. Morris, M.D., Registrar. Graduates in 1904, 29.

State Examinations.

	Passed.	Failed.	Total.
Idaho.....	0	1	1
Illinois	9	0	9
Indiana.....	1	0	1
Iowa.....	1	0	1
Kansas	3	0	3
Maryland.....	1	0	1
Missouri.....	1	0	1
Nebraska.....	1	0	1
Tennessee.....	1	0	1
Total.....	18	1	19
Percentage passed, 94.7.			

¹ Not official.

ILLINOIS MEDICAL COLLEGE, Chicago.

B. B. Eads, M.D., Dean. Graduates in 1904, 58.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	1	0	1
Arkansas ²	0	1 ³	1
Arizona.....	0	1	1
California.....	1	0	1
Illinois.....	29	3	32
Indiana.....	9	0	9
Iowa.....	3	0	3
Maryland.....	0	2	2
Mississippi ²	1	1 ³	2
Missouri.....	2	0	2
New Jersey.....	0	2 ⁴	2
New York.....	0	1	1
North Dakota.....	1	0	1
Ohio.....	1	0	1
Oklahoma.....	2	0	2
Pennsylvania.....	0	1	1
Texas ²	1	1 ³	2
Utah.....	1	0	1
Virginia.....	0	1	1
West Virginia.....	1	1	2
Total.....	54	15	69

Percentage passed, 78.

JENNER MEDICAL COLLEGE, Chicago.

C. Shorman, M.D., Registrar. Graduates in 1904, 24.

*State Examinations.*¹

	Passed.	Failed.	Total.
Illinois.....	18	1	19
Iowa.....	0	2	2
Total.....	18	3	21

Percentage passed, 85.7.

NATIONAL MEDICAL UNIVERSITY, Chicago.

L. D. Rogers, M.D., Dean. Graduates in 1904, 20.

*State Examinations.*¹

	Passed.	Failed.	Total.
Illinois.....	18	6	24
Iowa.....	2	0	2

¹ No reply from dean.² Not official.³ May be undergraduate.⁴ Class of 1902—same person, two examinations.

	Passed.	Failed.	Total.
Louisiana.....	1	0	1
Mississippi ¹	0	2 ²	2
Total.....	21	8	29

Percentage passed, 72.4.

NORTHWESTERN UNIVERSITY, Chicago.

N. S. Davis, Jr., Dean. Graduates in 1904, 133.

*State Examinations.*³

	Passed.	Failed.	Total.
Arizona.....	1	0	1
California.....	6	1	7
Idaho.....	2	0	2
Illinois.....	75	0	75
Indiana.....	1	0	1
Iowa.....	18	0	18
Kansas.....	3	0	3
Minnesota.....	7	0	7
Missouri.....	3	0	3
Montana.....	2	0	2
Nebraska.....	2	0	2
New Jersey.....	1	0	1
New York.....	3	0	3
North Dakota.....	3	0	3
Ohio.....	2	0	2
Oklahoma ¹	2	0	2
Oregon.....	2	0	2
Pennsylvania.....	2	0	2
South Dakota.....	6	0	6
Texas ¹	0	1 ⁴	1
Utah.....	1	0	1
Washington.....	9	0	9
Wisconsin.....	8	0	8
Total.....	159	2	161

Percentage passed, 98.7.

UNIVERSITY OF CHICAGO, Chicago (Rush Medical College).

Frank Billings, M.D., and John M. Dodson, M.D., Deans. Graduates in 1904, 160.

State Examinations.

	Passed.	Failed.	Total.
Arizona.....	1	0	1
Arkansas ¹	2	0	2

¹ Not official.

² May be undergraduates.

³ No reply from dean.

⁴ May be an undergraduate.

	Passed.	Failed.	Total.
California.....	14	4	18
District of Columbia.....	1	0	1
Idaho.....	3	0	3
Illinois.....	130	3	133
Indiana.....	11	1	12
Iowa.....	12	0	12
Kansas.....	5	1	6
Minnesota.....	7	0	7
Missouri.....	7	0	7
Montana.....	2	0	2
Nebraska.....	1	0	1
New Jersey.....	1	0	1
New York.....	3	0	3
North Dakota.....	3	0	3
Ohio.....	2	0	2
Oklahoma ¹	4	4	8
Oregon.....	2	0	2
Pennsylvania.....	1	0	1
South Dakota.....	3	1	4
Texas ¹	4	0	4
Utah.....	4	1	5
Washington.....	10	1	11
Wisconsin.....	12	0	12
Total.....	245	16	261

Percentage passed, 93.8.

UNIVERSITY OF ILLINOIS, Chicago (College of Physicians and Surgeons).

William E. Quine, M.D., Dean. Graduates in 1904, 214.

State Examinations.²

	Passed.	Failed.	Total.
Alabama ¹	1	0	1
California.....	9	2	11
Idaho.....	2	0	2
Illinois.....	143	2	145
Indiana.....	8	0	8
Iowa.....	12	3	15
Kansas.....	3	0	3
Michigan.....	3	0	3
Minnesota.....	11	2	13
Missouri.....	5	0	5
Montana.....	1	0	1

¹ Not official.

² No reply from dean.

	Passed.	Failed.	Total.
Nebraska.....	2	0	2
New York.....	1	1	2
North Dakota.....	4	2	6
Oklahoma ¹	0	2	2
Oregon.....	1	0	1
Pennsylvania.....	1	0	1
South Dakota.....	7	0	7
Tennessee.....	0	1	1
Texas ¹	1	0	1
Washington.....	6	1	7
Wisconsin.....	10	1	11
Total.....	231	17	248
Percentage passed, 93.1.			

Indiana.

CENTRAL COLLEGE OF PHYSICIANS AND SURGEONS, Indianapolis.
John F. Barnhill, Secretary. Graduates in 1904, 21.

State Examinations.

	Passed.	Failed.	Total.
Arizona.....	1	0	1
California.....	0	1	1
Illinois.....	1	0	1
Indiana.....	8	0	8
Total.....	10	1	11
Percentage passed, 90.9.			

ECLECTIC MEDICAL COLLEGE OF INDIANA, Indianapolis.
W. M. Brown, M.D., Dean. Graduates in 1904, 7.

State Examinations.¹

	Passed.	Failed.	Total.
Indiana.....	2	0	2

FORT WAYNE MEDICAL COLLEGE, Fort Wayne.
C. B. Stemen, M.D., Dean. Graduates in 1904, 5.

State Examinations.²

	Passed.	Failed.	Total.
Indiana.....	1	0	1
Ohio.....	0	2	2
Totals.....	1	2	3
Percentage passed, 33.3.			

¹ Not official.² No reply from dean.

PHYSIO-MEDICAL COLLEGE OF INDIANA, Indianapolis.

C. T. Bedford, M.D., Secretary. Graduates in 1904, 9.

State Examinations.

	Passed.	Failed.	Total.
Arkansas ¹	1	0	1
Indiana.....	3	0	3
Tennessee.....	0	1	1
Total.....	4	1	5

Percentage passed, 80.

UNIVERSITY OF INDIANAPOLIS, Indianapolis.

Henry Jameson, M.D., Dean. Graduates in 1904, 80.

*State Examinations.*³

	Passed.	Failed.	Total.
Arkansas ¹	1	0	1
California.....	1	0	1
Illinois.....	4	0	4
Indiana.....	13	2	15
Michigan.....	1	0	1
Mississippi ¹	1	0	1
Washington.....	1	1	2
Total.....	22	3	25

Percentage passed, 90.

Iowa.

DRAKE UNIVERSITY, Des Moines.

D. S. Fairchild, M.D., Dean. Graduates in 1904, 13.

State Examinations.

	Passed.	Failed.	Total.
Iowa.....	13	1 ³	14
Oklahoma ¹	1	0	1
Total.....	14	1	15

Percentage passed, 93.3.

KEOKUK MEDICAL COLLEGE, COLLEGE OF PHYSICIANS AND SURGEONS, Keokuk.

C. E. Ruth, M.D., Secretary. Graduates in 1904, 47.

State Examinations.

	Passed.	Failed.	Total.
Illinois.....	3	0	3
Indiana.....	1	0	1
Iowa.....	38	7	45

¹ Not official.

² No reply from dean.

³ Class of 1903—second examination.

	Passed.	Failed.	Total.
Minnesota.....	2	4	6
Missouri.....	4	4 ¹	8
Montana.....	1	0	1
New York.....	0	1 ²	1
Oregon.....	2	0	2
Total.....	51	16	67

Percentage passed, 74.6.

SIoux CITY COLLEGE OF MEDICINE, Sioux City.

J. N. Warren, M.D., President. Graduates in 1904, 12.

*State Examinations.*³

	Passed.	Failed.	Total.
Iowa	12	0	12
Minnesota	0	1	1
North Dakota.....	1	1	2
South Dakota.....	3	0	3
Total.....	16	2	18

Percentage passed, 88.9.

UNIVERSITY OF IOWA, COLLEGE OF MEDICINE, Iowa City.

James R. Guthrie, M.D., Dean. Graduates in 1904, 35.

*State Examinations.*³

	Passed.	Failed.	Total.
California.....	0	2	2
Illinois.....	2	0	2
Iowa	49	3	52
Minnesota.....	2	0	2
Missouri.....	1	0	1
Oregon.....	2	0	2
South Dakota.....	0	1	1
Washington	2	2	4
Total.....	58	8	66

Percentage passed, 88.

UNIVERSITY OF IOWA, COLLEGE OF HOMOEOPATHIC MEDICINE, Iowa City.

George Royal, M.D., Dean. Graduates in 1904, 9.

*State Examinations.*³

	Passed.	Failed.	Total.
Iowa	8	1	9
North Dakota.....	1	0	1
Washington.....	2	2	4
Total.....	11	3	14

Percentage passed, 78.6.

¹ Some may be undergraduates.

² Class of 1897.

³ No reply from dean.

Kansas.

COLLEGE OF PHYSICIANS AND SURGEONS, Kansas City.

J. E. Sawtell, M.D., Dean. Graduates in 1904, 10.

State Examinations.

	Passed.	Failed.	Total.
Montana.....	1	0	1

KANSAS MEDICAL COLLEGE, Topeka.

H. L. Alkire, M.D., Dean. Graduates in 1904, 16.

State Examinations.¹

	Passed.	Failed.	Total.
District of Columbia.....	1	0	1
Idaho.....	0	1	1
Kansas.....	1	0	1
Oklahoma ²	3	1	4
Oregon.....	1	0	1
Washington.....	1	1 ³	2
Total.....	7	3	10
Percentage passed, 70.			

Kentucky.

CENTRAL UNIVERSITY OF KENTUCKY, Louisville (Hospital College of Medicine).

P. Richard Taylor, M.D., Dean. Graduates in 1904, 99.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	0	1	1
Illinois.....	0	2	2
Indiana.....	7	6	13
Mississippi ²	4	1 ⁴	5
Missouri.....	1	0	1
Montana.....	0	1	1
Ohio.....	2	0	2
Tennessee.....	3	0	3
Texas ²	1	1 ⁴	2
Virginia.....	2	0	2
West Virginia.....	1	1	2
Total.....	21	13	34
Percentage passed, 61.8			

¹ No reply from dean.² Not official.³ Class of 1899.⁴ May be an undergraduate.

KENTUCKY SCHOOL OF MEDICINE, Louisville.

W. H. Wathen, M.D., Dean. Graduates in 1904, 58.

State Examinations.

	Passed.	Failed.	Total.
Arizona.....	1	0	1
Arkansas ¹	1	0	1
California.....	0	1 ²	1
District of Columbia.....	1	0	1
Idaho.....	1	1 ³	2
Indiana.....	9	1 ⁴	10
Louisiana.....	0	1	1
Massachusetts.....	3	5 ⁵	8
Missouri.....	5	2	7
Nebraska.....	1	0	1
New York.....	0	1	1
Ohio.....	1	0	1
Tennessee.....	3	0	3
Texas ¹	0	1 ²	1
Utah.....	1	0	1
Virginia.....	2	2	4
Washington.....	4	0	4
West Virginia.....	2	3	5
Total.....	35	18	53
Percentage passed, 66.			

KENTUCKY UNIVERSITY, Louisville.

Thomas C. Evans, M.D., Dean. Graduates in 1904, 71.

State Examinations.

	Passed.	Failed.	Total.
Arkansas ¹	1	0	1
Idaho.....	0	1	1
Illinois.....	3	0	3
Indiana.....	11	2	13
Louisiana.....	2	1	3
Mississippi ¹	2	1 ²	3
Missouri.....	4	1	5
Montana.....	1	0	1
Nebraska.....	1	0	1
New York.....	0	1	1

¹ Not official.² Class of 1885.³ Class of 1894.⁴ Not a recent graduate.⁵ Failed to pass in elementary subjects, which were taken at other colleges.—Dean.⁶ May be an undergraduate.

	Passed.	Failed.	Total.
Pennsylvania	1	1	2
Tennessee	1	0	1
West Virginia	3	1	4
Total	30	9	39

Percentage passed, 76.9.

LOUISVILLE MEDICAL COLLEGE, Louisville.

Irvin Abell, M.D., Secretary. Graduates in 1904, 61.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	3	0	3
Arkansas ¹	1	0	1
Idaho	1	0	1
Illinois	4	1 ²	5
Indiana	4	2 ²	6
Kansas	2	1	3
Louisiana	3	0	3
Mississippi ¹	4	4 ³	8
Missouri	3	1 ²	4
North Carolina	1	1 ²	2
Oklahoma ¹	1	1 ²	2
Tennessee	1	0	1
Texas ¹	3	0	3
Virginia	4	0	4
Washington	2	1	3
Total	37	12	49

Percentage passed, 75.5.

LOUISVILLE NATIONAL MEDICAL COLLEGE, Louisville.

W. A. Burney, M.D., Dean. Graduates in 1904, 4.

*State Examinations.*⁴

	Passed.	Failed.	Total.
West Virginia	1	0	1

SOUTHWESTERN HOMEOPATHIC MEDICAL COLLEGE, Louisville.

A. L. Monroe, M.D., Dean. Graduates in 1904, 6.

UNIVERSITY OF LOUISVILLE, Louisville.

J. M. Bodine, M.D., Dean. Graduates in 1904, 38.

*State Examinations.*⁴

	Passed.	Failed.	Total.
Arkansas ¹	0	1	1
California	2	2	4

¹ Not official.

² From information received from the secretary of the college, these failures were from other classes than 1904.

³ May be undergraduates—none were of class of 1904.

⁴ No reply from dean.

	Passed.	Failed.	Total.
Illinois.....	0	1	1
Indiana.....	10	2	12
Kansas.....	0	1	1
Louisiana.....	1	2	3
Massachusetts.....	1	0	1
Missouri.....	1	3	4
New York.....	0	1	1
Ohio.....	3	1	4
Oklahoma ¹	1	1	2
Pennsylvania.....	1	2	3
Tennessee.....	4	0	4
Texas.....	2	1	3
Virginia.....	2	0	2
Washington.....	0	2	2
West Virginia.....	1	0	1
Total.....	27	19	46
Percentage passed, 58.7.			

Louisiana.

NEW ORLEANS UNIVERSITY, New Orleans (Flint Medical College).
H. J. Clements, M.D., Dean. Graduates in 1904, 5.

*State Examinations.*²

	Passed.	Failed.	Total.
Arkansas ¹	1	0	1
Louisiana.....	4	5	9
Mississippi ¹	1	5 ³	6
Total.....	6	10	16
Percentage passed, 37.5.			

TULANE UNIVERSITY, New Orleans.

Stanford E. Chaillé, M.D., Dean. Graduates in 1904, 82.

*State Examinations.*⁴

	Passed.	Failed.	Total.
Alabama ¹	8	1	9
Arizona.....	2	0	2
California.....	0	1	1
Georgia.....	2	0	2

¹ Not official.

² No reply from dean.

³ May be undergraduates.

⁴ The dean reports that no graduate for the past two years has failed to pass a state examination. In states like Mississippi and Texas, where graduation in a medical school is not required of the candidate for state examination, students who have not finished the course, or have failed in the final examination, record themselves as graduates. This fact should always be remembered in making use of the statistics for such states.

	Passed.	Failed.	Total.
Louisiana.....	55	0	55
Mississippi ¹	13	3	16
Tennessee.....	2	0	2
Texas.....	4	2	6
Total.....	86	7	93

Percentage passed, 92.4.

Maine.

BOWDOIN, Portland (Medical School of Maine).

Alfred Mitchell, M.D., Dean. Graduates in 1904, 22.

State Examinations.²

	Passed.	Failed.	Total.
Maine.....	21	5	26
Massachusetts.....	2	0	2
New Hampshire.....	1	0	1
New York.....	1	0	1
Oregon.....	1	0	1
Rhode Island.....	1	0	1
Total.....	27	5	32

Percentage passed, 84.4.

Maryland.

BALTIMORE MEDICAL COLLEGE, Baltimore.

David Street, M.D., Dean. Graduates in 1904, 77.

State Examinations.²

	Passed.	Failed.	Total.
Arkansas ¹	1	0	1
California.....	1	0	1
Connecticut.....	3	6	9
Illinois.....	3	0	3
Iowa.....	1	0	1
Kentucky.....	1	2	3
Louisiana.....	1	0	1
Maine.....	2	0	2
Maryland.....	15	9	24
Massachusetts.....	16	7	23
Nebraska.....	1	0	1
New Hampshire.....	3	0	3
New Jersey.....	7	0	7
New York.....	12	1	13
North Carolina.....	0	1	1
Ohio.....	1	0	1
Oklahoma ¹	0	1	1

¹ Not official.

² No reply from dean.

	Passed.	Failed.	Total.
Pennsylvania	7	6	13
Rhode Island.....	2	0	2
Tennessee	1	0	1
Vermont.....	3	1	4
Virginia.....	3	1	4
Washington	1	0	1
West Virginia.....	5	0	5
Total.....	90	35	125
Percentage passed, 72.			

BALTIMORE UNIVERSITY, Baltimore.

Hampson H. Biedler, M.D., Dean. Graduates in 1904, 51.

*State Examinations.*¹

	Passed.	Failed.	Total.
Delaware.....	0	1	1
Maine.....	2	0	2
Maryland.....	0	9	9
Massachusetts.....	2	8	10
New Jersey.....	3	4	7
New York.....	4	4	8
Oklahoma ²	0	1	1
Pennsylvania	6	5	11
Rhode Island.....	0	1	1
Virginia.....	1	0	1
West Virginia.....	0	1	1
Total.....	18	34	52
Percentage passed, 34.6.			

COLLEGE OF PHYSICIANS AND SURGEONS, Baltimore.

Thomas Opie, M.D., Dean. Graduates in 1904, 83.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arkansas ²	1	0	1
California.....	0	1	1
Connecticut.....	4	3	7
Illinois.....	1	0	1
Indiana.....	2	0	2
Iowa	1	0	1
Louisiana.....	1	0	1
Maine.....	1	2	3
Maryland.....	17	8	25
Massachusetts.	10	1	11

¹ No reply from dean.

² Not official.

	Passed.	Failed.	Total.
Montana.....	1	1	2
New Jersey	5	0	5
New York.....	4	0	4
North Carolina.....	2	0	2
Ohio	1	0	1
Oklahoma ¹	1	1	2
Pennsylvania	14	8	22
Rhode Island.....	6	2	8
South Carolina.....	1	1	2
Tennessee	3	0	3
Utah	4	2	6
Virginia.....	3	0	3
West Virginia.....	9	1	10
Total.....	92	31	123

Percentage passed, 74.7.

JOHNS HOPKINS, Baltimore.

William H. Howell, M.D., Dean. Graduates in 1904, 45.

*State Examinations.*²

	Passed.	Failed.	Total.
California.....	3	0	3
Connecticut.....	1	0	1
District of Columbia.....	2	0	2
Georgia.....	3	0	3
Illinois.....	4	0	4
Maine.....	1	0	1
Maryland.....	8	0	8
Minnesota.....	2	0	2
Missouri.....	1	0	1
New Jersey.....	1	0	1
New York.....	14	0	14
Ohio	1	0	1
Oregon.....	1	0	1
Pennsylvania	8	0	8
Tennessee	2	0	2
Texas ¹	1	0	1
Vermont.....	1	0	1
Virginia.....	1	0	1
Washington.....	1	0	1
West Virginia.....	2	0	2
Wisconsin.....	1	1	2
Total.....	59	1	60

Percentage passed, 98.3.

¹ Not official.

² No reply from dean.

MARYLAND MEDICAL COLLEGE, Baltimore.

J. William Funck, M.D., Dean. Graduates in 1904, 104.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	8	1	9
Connecticut.....	1	2	3
Florida ²	2	0	2
Georgia.....	5	0	5
Louisiana.....	2	0	2
Maine.....	2	0	2
Maryland.....	7	13	20
Massachusetts.....	2	5	7
New Hampshire.....	0	1	1
North Carolina.....	1	1	2
Pennsylvania	3	5	8
Rhode Island.....	2	1	3
Tennessee	1	0	1
Virginia.....	1	9	10
West Virginia.....	14	3	17
Total.....	51	41	92

Percentage passed, 55.4.

SOUTHERN HOMEOPATHIC MEDICAL COLLEGE, Baltimore.

George T. Shower, M.D., Dean. Graduates in 1904, 13.

*State Examinations.*¹

	Passed.	Failed.	Total.
Delaware	1	0	1
Maryland.....	12	0	12
Pennsylvania	0	2	2
West Virginia	1	0	1
Total.....	14	2	16

Percentage passed, 87.5.

UNIVERSITY OF MARYLAND, Baltimore.

R. Dorsey Coale, M.D., Dean. Graduates in 1904, 96.

State Examinations.

	Passed.	Failed.	Total.
Arizona.....	1	0	1
Arkansas ²	1	0	1
Connecticut.....	0	1	1
Delaware	1	0	1
District of Columbia.....	3	1	4

¹ No reply from dean.² Not official.

	Passed.	Failed.	Total.
Georgia	5	0	5
Kentucky.....	0	1	1
Maryland.....	40	10	50
Massachusetts.....	2	1	3
Missouri.....	1	0	1
New Jersey	2	0	2
New York.....	1	0	1
North Carolina.....	18	4	22
Pennsylvania.....	1	4	5
Rhode Island.....	2	0	2
South Carolina.....	7	1	8
Texas ¹	1	0	1
Virginia.....	7	2	9
Washington	2	1	3
West Virginia.....	10	2	12
Total.....	105	28	133
Percentage passed, 78.9.			

WOMAN'S MEDICAL COLLEGE, Baltimore.

R. H. Thomas, M.D., Dean. Graduates in 1904, 3.

*State Examinations.*²

	Passed.	Failed.	Total.
Connecticut.....	1	0	1
Maryland.....	1	0	1
Total.....	2	0	2
Percentage passed, 100.			

Massachusetts.

BOSTON UNIVERSITY, Boston.

John P. Sutherland, M.D., Dean. Graduates in 1904, 27.

State Examinations.

	Passed.	Failed.	Total.
Connecticut	1	1	2
Georgia.....	3	0	3
Maine.....	3	0	3
Massachusetts.....	16	0	16
Minnesota	2	0	2
New Hampshire.....	4	0	4
New Jersey.....	1	0	1
New York.....	4	0	4
North Carolina.....	1	0	1

¹ Not official.

² No reply from dean.

	Passed.	Failed.	Total.
Pennsylvania.....	1	2	3
Rhode Island.....	4	0	4
Virginia.....	0	1	1
Total.....	40	4	44
Percentage passed, 90.9.			

COLLEGE OF PHYSICIANS AND SURGEONS, Boston.
John H. Jackson, M.D., Registrar. Graduates in 1904, 27.

*State Examinations.*¹

	Passed.	Failed.	Total.
Connecticut.....	0	1	1
Louisiana.....	1	0	1
Maine.....	5	1	6
Massachusetts.....	10	4	14
New Hampshire.....	1	0	1
New Jersey.....	1	1	2
Pennsylvania.....	0	1	1
Rhode Island.....	2	0	2
Texas ²	1	0	1
Virginia.....	1	1	2
Total.....	22	9	31
Percentage passed, 71.0.			

HARVARD, Boston.
William L. Richardson, M.D., Dean. Graduates in 1904, 133.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona.....	1	0	1
California.....	1	1	2
Illinois.....	4	0	4
Louisiana.....	2	0	2
Maine.....	8	0	8
Massachusetts.....	103	0	103
Michigan.....	1	0	1
Minnesota.....	1	0	1
Missouri.....	2	0	2
New Hampshire.....	10	0	10
New York.....	6	0	6
Oregon.....	1	0	1
Pennsylvania.....	2	0	2
Rhode Island.....	9	0	9

¹ No reply from dean.

² Not official.

	Passed.	Failed.	Total.
South Carolina.....	1	0	1
Washington	2	0	2
Total.....	154	1	155
Percentage passed, 98.7.			

TUFTS COLLEGE, Boston.

Harold Williams, M.D., Dean. Graduates in 1904, 50.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	2	3
Connecticut.....	2	0	2
Idaho.....	1	0	1
Maine.....	3	0	3
Massachusetts.....	42	6	48
New Hampshire	4	1	5
New York.....	1	1	2
Ohio	1	0	1
Rhode Island.....	3	0	3
Utah	1	0	1
Total.....	59	10	69
Percentage passed, 85.5.			

Michigan.

DETROIT COLLEGE OF MEDICINE, Detroit.

H. O. Walker, M.D., Dean. Graduates in 1904, 72.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	1	2
Idaho.....	2	0	2
Illinois.....	1	0	1
Massachusetts	3	0	3
Michigan.....	6	0	6
Minnesota.....	0	1	1
Montana.....	1	1	2
New York.....	2	0	2
North Dakota.....	1	0	1
Ohio.....	1	0	1
Oklahoma ²	1	0	1
Washington.....	5	0	5
West Virginia.....	2	0	2
Total.....	26	3	29
Percentage passed, 89.6.			

¹ No reply from dean.

² Not official.

DETROIT HOMEOPATHIC COLLEGE, Detroit.

D. A. MacLellan, Dean. Graduates in 1904, 8.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona.....	0	1	1
Michigan.....	1	0	1
Oregon.....	2	0	2
Total.....	3	1	4

Percentage passed, 75.

GRAND RAPIDS MEDICAL COLLEGE, Grand Rapids.

C. H. White, M.D., Dean. Graduates in 1904, 0.

MICHIGAN COLLEGE OF MEDICINE, Detroit.²

Hal C. Wyman, Dean. Graduates in 1904, 26.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona.....	0	1	1
California.....	1	1	2
Michigan.....	0	1	1
Oregon.....	1	0	1
Total.....	2	3	5

Percentage passed, 40.

UNIVERSITY OF MICHIGAN, DEPARTMENT OF MEDICINE AND SURGERY, Ann Arbor.

Victor C. Vaughan, M.D., Dean. Graduates in 1904, 101.

State Examinations.

	Passed.	Failed.	Total.
Alabama ³	1	1	2
Arizona.....	3	0	3
California.....	3	4 ⁴	7
District of Columbia.....	2	1	3
Georgia.....	2	0	2
Idaho.....	1	2	3
Illinois.....	6	0	6
Indiana.....	4	0	4
Iowa.....	3	0	3
Kansas.....	2	0	2
Louisiana.....	1	0	1
Maine.....	1	0	1

¹ No reply from dean.² The Saginaw Valley Medical College is now united with the Michigan College of Medicine.³ Not official.⁴ Two of class 1890, one a second examination.

	Passed.	Failed.	Total.
Massachusetts.....	2	0	2
Michigan.....	32	0	32
Minnesota.....	2	1 ¹	3
Missouri.....	3	0	3
Montana.....	2	0	2
New York.....	4	1 ²	5
North Carolina.....	2	0	2
North Dakota.....	1	0	1
Ohio	10	0	10
Oregon.....	4	0	4
Pennsylvania	1	0	1
South Dakota.....	1	0	1
Texas.....	1	0	1
Utah	2	0	2
Vermont.....	1	0	1
Washington	7	1	8
Wisconsin	1	0	1
Total.....	105	11	116
Percentage passed, 90.5.			

UNIVERSITY OF MICHIGAN, HOMOPATHIC COLLEGE, Ann Arbor.
W. B. Hinsdale, M.D., Dean. Graduates in 1904, 21.

*State Examinations.*³

	Passed.	Failed.	Total.
New York.....	1	0	1
Oklahoma ⁴	0	1	1
Total.....	1	1	2
Percentage passed, 50.			

Minnesota.

HAMLIN UNIVERSITY, Minneapolis, College of Physicians and Surgeons.

George C. Barton, M.D., Dean. Graduates in 1904, 16.

*State Examinations.*⁵

	Passed.	Failed.	Total.
Illinois.....	1	0	1
Minnesota.....	13	11	24

¹ Class of 1901.

² Class of 1870.

³ No reply from the dean. The state boards are not careful in the records of graduates from those state universities having two medical departments to distinguish between them, so that some of the graduates from this department may be included in the figures given for the other department.

⁴ Not official.

⁵ No reply from the dean.

	Passed.	Failed.	Total.
North Dakota.....	6	3	9
South Dakota.....	3	3	6
Washington.....	3	0	3
Total.....	26	17	43
Percentage passed, 60.5.			

UNIVERSITY OF MINNESOTA, COLLEGE OF MEDICINE AND SURGERY,
Minneapolis.

Parks Ritchie, M.D., Dean. Graduates in 1904, 67.

State Examinations.

	Passed.	Failed.	Total.
California.....	4	1	5
Illinois.....	1	0	1
Indiana.....	1	0	1
Iowa.....	3	0	3
Kansas.....	1	0	1
Minnesota.....	63	1	64
New York.....	1	0	1
North Dakota.....	10	0	10
Oregon.....	2	0	2
Washington.....	7	0	7
Wisconsin.....	6	0	6
Total.....	99	2	101
Percentage passed, 98.			

UNIVERSITY OF MINNESOTA, COLLEGE OF HOMEOPATHIC MEDICINE
AND SURGERY.

Eugene L. Mann, M.D., Dean. Graduates in 1904, 4.

State Examinations.¹

	Passed.	Failed.	Total.
Minnesota.....	4	0	4
North Dakota.....	1	0	1
Washington.....	1	0	1
Wisconsin.....	0	1	1
Total.....	6	1	7
Percentage passed, 85.7.			

Mississippi.

UNIVERSITY OF MISSISSIPPI, MEDICAL DEPARTMENT, Oxford.

W. L. Leathers, M.D., Dean. Graduates in 1904, 0.

¹ No reply from dean.

Missouri.**AMERICAN MEDICAL COLLEGE, St. Louis.**

Mont. M. Hamlin, M.D., Dean. Graduates in 1904, 12.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	0	1
Illinois.....	4	1	5
Iowa.....	0	1	1
Oklahoma ¹	0	1	1
Oregon.....	1	0	1
Utah.....	0	2	2
Total ²	6	5	11

Percentage passed, 54.5.

BARNES MEDICAL COLLEGE, St. Louis.

Pinckney French, M.D., Secretary. Graduates in 1904, 125.

State Examinations.³

	Passed.	Failed.	Total.
Arkansas ¹	2	1	3
California.....	1	0	1
Idaho.....	2	1	3
Illinois.....	19	0	19
Indiana.....	1	0	1
Iowa.....	5	5	10
Kansas.....	2	0	2
Louisiana.....	1	0	1
Massachusetts.....	0	2	2
Minnesota.....	1	0	1
Mississippi ¹	0	2 ⁴	2
Nebraska.....	1	0	1
North Dakota.....	2	1	3
Ohio.....	1	0	1
Oklahoma ¹	2	3	5
Pennsylvania.....	0	1	1
Texas ¹	1	0	1
Utah.....	1	0	1
Virginia.....	1	0	1
Washington.....	3	2	5
Total.....	46	18	64

Percentage passed, 71.9.

¹ Not official.² This dean claims several to have passed the Texas board; as no information was obtainable from these boards the figures cannot be included here.³ No reply from dean.⁴ May be undergraduates.

CENTRAL MEDICAL COLLEGE, St. Joseph.

C. A. Tygart, M.D., Secretary. Graduates in 1904, 13.

*State Examinations.*¹

	Passed.	Failed.	Total.
Idaho.....	0	2	2
Kansas.....	1	0	1
Nebraska.....	2	0	2
Oklahoma ²	1	3	4
Washington.....	0	1 ³	1
Total.....	4	6	10

Percentage passed, 40.

ECLECTIC MEDICAL UNIVERSITY, Kansas City.

Theodore Doyle, M.D., Dean. Graduates in 1904, 16.

*State Examinations.*¹

	Passed.	Failed.	Total.
Kansas.....	1	0	1

ENSWORTH MEDICAL COLLEGE, St. Joseph.

Jacob Geiger, M.D., Dean. Graduates in 1904, 19.

*State Examinations.*¹

	Passed.	Failed.	Total.
Iowa.....	3	0	3
Kansas.....	3	0	3
Massachusetts.....	1	0	1
Nebraska.....	1	1	2
Oklahoma ²	1	0	1
Washington.....	0	1 ⁴	1
Total.....	9	2	11

Percentage passed, 81.8.

HOMEOPATHIC MEDICAL COLLEGE OF MISSOURI, St. Louis.

L. C. McElwee, M.D., Dean. Graduates in 1904, 10.

State Examinations.

	Passed.	Failed.	Total.
Illinois.....	1	1 ⁵	2
Indiana.....	1	1 ⁵	2
Iowa.....	0	2	2
Total.....	2	4	6

Percentage passed, 33.3.⁶¹ No reply from dean.² Not official.³ Class of 1898.⁴ Class of 1903.⁵ Same person failing in two states.⁶ While figures are incapable of falsehood, it is easy to misinterpret them. This report illustrates the uncertainty of statistical investigation so admirably, that special attention is called to it, in order to suggest the necessity of care in the interpretation of the figures in all the tables published.

KANSAS CITY HAHNEMANN MEDICAL COLLEGE, Kansas City.
S. H. Anderson, M.D., Dean. Graduates in 1904, 17.

*State Examinations.*¹

	Passed.	Failed.	Total.
Kansas	2	0	2
Oklahoma ²	0	1	1
Texas ²	1	0	1
Washington.....	0	1 ³	1
	—	—	—
Total.....	3	2	5

Percentage passed, 60.

KANSAS CITY MEDICAL COLLEGE, Kansas City.
R. M. Schaffler, M.D., Dean. Graduates in 1904, 34.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arkansas ²	1	0	1
Idaho.....	0	1	1
Kansas	4	0	4
Minnesota.....	0	1	1
Montana.....	0	1	1
Oklahoma ²	2	3	5
Pennsylvania	0	1	1
Texas ²	1	0	1
Washington	2	4	6
	—	—	—
Total.....	10	11	21

Percentage passed, 47.6.

MARION SIMS-BEAUMONT COLLEGE OF MEDICINE, St. Louis.
H. W. Loeb, M.D., Secretary. Graduates in 1904, 93.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	1	2
Illinois.....	35	0	35
Iowa	1	2	3
Mississippi ²	1	0	1
New York.....	0	1	1
North Dakota.....	0	1	1
Oklahoma ²	1	0	1
Oregon.....	1	0	1
South Dakota.....	1	0	1

¹ No reply from dean.

² Not official.

³ Class of 1902.

	Passed.	Failed.	Total.
Texas ¹	0	1	1
Utah	1	1	2
Washington	1	1	2
Total.....	43	8	51

Percentage passed, 84.3.

MEDICO-CHIRURGICAL COLLEGE, Kansas City.

C. Lester Hall, M.D., Dean. Graduates in 1904, 20.

*State Examinations.*²

	Passed.	Failed.	Total.
Arkansas ¹	1	0	1
Kansas.....	3	0	3
Oklahoma ¹	0	1	1
Texas ¹	0	1	1
Total.....	4	2	6

Percentage passed, 66.7.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS, St. Louis.

Waldo Briggs, M.D., Dean. Graduates in 1904, 47.

*State Examinations.*²

	Passed.	Failed.	Total.
Arizona.....	2	0	2
Arkansas ¹	1	0	1
Illinois.....	21	1	22
Indiana.....	1	0	1
Iowa.....	5	3	8
Massachusetts.....	0	1	1
Montana.....	1	0	1
North Dakota.....	1	0	1
Oregon.....	0	1	1
South Dakota.....	0	1	1
Texas ¹	0	1	1
Washington	1	0	1
Total.....	33	8	41

Percentage passed, 80.5.

UNIVERSITY MEDICAL COLLEGE, Kansas City.

Samuel C. James, M.D., Dean. Graduates in 1904, 67.

*State Examinations.*²

	Passed.	Failed.	Total.
Arizona.....	1	0	1
California.....	0	1	1
Idaho	1	2	3

¹ Not official.

² No reply from dean.

	Passed.	Failed.	Total.
Iowa	1	2	3
Kansas.....	2	3	5
Montana.....	1	0	1
Oklahoma ¹	3	2	5
Oregon.....	2	0	2
Texas ¹	2	1	3
Utah	1	0	1
Washington.....	1	0	1
Total.....	15	11	26

Percentage passed, 57.7.

UNIVERSITY OF MISSOURI, Columbia.

A. W. McAlester, M.D., Dean. Graduates in 1904, 10.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	0	1
Wisconsin	1	0	1
Total.....	2 ²	0	2

WASHINGTON UNIVERSITY, St. Louis.

Robert Luedeking, M.D., Dean. Graduates in 1904, 63.

State Examinations.³

	Passed.	Failed.	Total.
Arizona.....	1	0	1
Illinois.....	25	0	25
Indiana	2	0	2
Iowa	1	0	1
Minnesota.....	0	1	1
Nebraska.....	1	0	1
North Dakota.....	0	1	1
Oklahoma ¹	1	1	2
Utah	1	0	1
Washington	3	2	5
Total.....	35	5	40

Percentage passed, 87.5.

WOMAN'S MEDICAL COLLEGE, Kansas City.

Nannie P. Lewis, M.D., Dean. Graduates in 1904, 0.

¹ Not official.

² The dean reports one passing examination in Alabama, which is not included in the most authentic list of that state obtainable.

³ No reply from dean.

Nebraska.

COTNER UNIVERSITY, Lincoln, Lincoln Medical College.
 Samuel Metheny, M.D., Dean. Graduates in 1904, 22.

*State Examinations.*¹

	Passed.	Failed.	Total.
Kansas.....	1	0	1
Nebraska.....	19	4	23
Washington.....	1	1	2
Total.....	21	5	26

Percentage passed, 80.8.

CREIGHTON UNIVERSITY, Omaha.

D. C. Bryant, M.D., Secretary. Graduates in 1904, 30.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	0	1
Iowa	5	0	5
Kansas.....	3	0	3
Minnesota.....	1	0	1
Missouri.....	3	0	3
Nebraska.....	25	1	26
Oregon.....	1	0	1
South Dakota.....	2	0	2
Washington	2	0	2
Total.....	43	1	44

Percentage passed, 97.7.

UNIVERSITY OF NEBRASKA, Lincoln and Omaha.

Paul H. Ludington, M.D., Secretary, Omaha. Graduates in 1904, 30.

*State Examinations.*¹

	Passed.	Failed.	Total.
Illinois.....	1	0	1
Iowa	2	1	3
Nebraska	29	1	30
New York.....	1	0	1
North Dakota.....	1	0	1
Oregon.....	1	0	1
Total.....	35	2	37

Percentage passed, 94.6.

¹ No reply from dean.

New Hampshire.

DARTMOUTH, Hanover.

William T. Smith, M.D., Dean. Graduates in 1904, 13.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	0	1	1
Connecticut.....	1	1	2
Iowa	1	0	1
Massachusetts.....	3	0	3
New Hampshire.....	3	0	3
New York.....	1	0	1
Rhode Island.....	1	0	1
Vermont.....	2	0	2
Total.....	12	2	14

Percentage passed, 85.7.

New York.

COLUMBIA, New York, College of Physicians and Surgeons.

John G. Curtis, M.D., Acting Dean. Graduates in 1904, 178.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	2	0	2
Arizona.....	2	0	2
California.....	3	2	5
Connecticut.....	10	0	10
District of Columbia..	1	0	1
Georgia.....	2	0	2
Illinois.....	1	0	1
Indiana.....	1	0	1
Iowa	1	0	1
Massachusetts	14	1	15
Montana	1	0	1
New Hampshire.....	0	1	1
New Jersey	11	1	12
New York.....	160	5	165
North Carolina.....	1	0	1
Ohio	1	0	1
Pennsylvania	3	0	3
Rhode Island.....	5	0	5
South Carolina.....	1	0	1
South Dakota.....	1	0	1
Texas ²	3	0	3

¹ No reply from dean.² Not official.

	Passed.	Failed.	Total.
Vermont.....	1	0	1
Washington.....	1	0	1
Wisconsin.....	2	0	2
Total.....	228	10	238
Percentage passed, 95.8.			

CORNELL, New York.

William M. Polk, M.D., Dean. Graduates in 1904, 55.

State Examinations.

	Passed.	Failed.	Total.
Connecticut.....	2	0	2
Kansas.....	1	0	1
Massachusetts.....	2	0	2
Michigan.....	1	0	1
New York.....	58	1	59
North Dakota.....	1	0	1
Pennsylvania.....	0	1	1
Vermont.....	1	0	1
Total.....	66	2	68
Percentage passed, 97.			

ECLECTIC MEDICAL COLLEGE OF THE CITY OF NEW YORK, New York.

George W. Boskowitz, M.D., Dean. Graduates in 1904, 8.

State Examinations.

	Passed.	Failed.	Total.
Illinois... ..	1	0	1
New York.....	9	0	9
Ohio.....	1	0	1
Total.....	11	0	11
Percentage passed, 100.			

LONG ISLAND COLLEGE HOSPITAL, Brooklyn.

Joseph H. Raymond, M.D., Dean. Graduates in 1904, 47.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	0	1
Idaho.....	1	0	1
New Jersey.....	1	0	1
New York.....	45	1	46
Ohio.....	1	0	1
Washington.....	1	0	1
Total.....	50	1	51
Percentage passed, 98.			

NEW YORK HOMOEOPATHIC MEDICAL COLLEGE AND HOSPITAL, New York.

W. H. King, M.D., Dean. Graduates in 1904, 28.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona.....	1	0	1
California.....	1	0	1
Connecticut.....	1	0	1
District of Columbia.....	1	0	1
Indiana.....	1	0	1
New York	27	0	27
Total.....	32	0	32

Percentage passed, 100.

NEW YORK MEDICAL COLLEGE AND HOSPITAL FOR WOMEN, New York.

M. Belle Brown, M.D., Dean. Graduates in 1904, 5.

State Examinations.

	Passed.	Failed.	Total.
New York	9	0	9

SYRACUSE UNIVERSITY, Syracuse.

Gaylord P. Clark, M.D., Dean. Graduates in 1904, 31.

State Examinations.

	Passed.	Failed.	Total.
Maine.....	1	0	1
New Jersey.....	1	0	1
New York.....	30	0	30
Oregon.....	1	0	1
Pennsylvania	1	0	1
Rhode Island.....	1	0	1
Washington.....	1	0	1
Total.....	36	0	36

Percentage passed, 100.

UNION, Albany, Albany Medical College.

Willis G. Tucker, M.D., Registrar. Graduates in 1904, 41.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	1	2
Massachusetts.....	1	2	3
New Jersey	0	1 ²	1
New York.....	41	1	42

¹ No reply from dean.

² Class of 1902.

	Passed.	Failed.	Total.
Vermont.....	1	0	1
Washington.....	1	0	1
	—	—	—
Total.....	45	5	50
Percentage passed, 90.			

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, New York.
Edward G. Janeway, M.D., Dean. Graduates in 1904, 61.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona	1	0	1
California.....	0	4	4
Connecticut.....	2	0	2
District of Columbia.....	0	1	1
Georgia	1	0	1
Indiana.....	2	0	2
Iowa	1	0	1
Louisiana.....	2	0	2
Maryland.....	1	0	1
Massachusetts.....	1	0	1
Montana.....	1	0	1
Nebraska.....	1	0	1
New Hampshire.....	0	1	1
New Jersey.....	4	0	4
New York.....	48	1	49
Ohio	2	0	2
Oregon.....	1	0	1
Utah	1	0	1
Washington	4	0	4
	—	—	—
Total.....	73	7	80
Percentage passed, 91.2.			

UNIVERSITY OF BUFFALO, Buffalo.
Matthew D. Mann, M.D., Dean. Graduates in 1904, 54.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	0	1
Indiana.....	1	0	1
New York	43	4	47
Ohio	1	0	1
	—	—	—
Total.....	46	4	50
Percentage passed, 92.			

¹ No reply from dean.

North Carolina.

NORTH CAROLINA MEDICAL COLLEGE, Davidson and Charlotte.
J. P. Monroe, M.D. (Davidson), President. Graduates in 1904, 17.

State Examinations.

	Passed.	Failed.	Total.
North Carolina.....	18	1 ¹	19
Percentage passed, 94.7.			

SHAW UNIVERSITY, Raleigh, Leonard School of Medicine.
James McKee, M.D., Dean. Graduates in 1904, 21.

State Examinations.²

	Passed.	Failed.	Total.
Alabama ³	1	0	1
Georgia.....	1	0	1
North Carolina.....	2	2	4
South Carolina.....	1	2	3
Virginia	5	19	24
Total.....	10	23	33
Percentage passed, 30.3.			

UNIVERSITY OF NORTH CAROLINA, Chapel Hill and Raleigh.
Francis P. Venable, Ph.D., LL.D. (Chapel Hill), President.
Graduates in 1904, 4.

State Examinations.

	Passed.	Failed.	Total.
North Carolina.....	4	0	4

Ohio.

CLEVELAND HOMOEOPATHIC MEDICAL COLLEGE, Cleveland.
Gaius J. Jones, M.D., Dean. Graduates in 1904, 25.

State Examinations.²

	Passed.	Failed.	Total.
Kentucky.....	1	0	1
New York.....	0	1	1
North Carolina.....	0	1	1
Ohio.....	13	3	16
Pennsylvania	4	4	8
Total.....	18	9	27
Percentage passed, 66.7.			

¹ Class of 1903.

² No reply from dean.

³ Not official.

ECLECTIC MEDICAL INSTITUTE, Cincinnati.

John K. Scudder, M.D., Secretary. Graduates in 1904, 27.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	1	0	1
California.....	0	1	1
Illinois.....	1	0	1
Indiana.....	5	2	7
Iowa.....	0	6	6 ²
Kansas.....	2	1	3
Missouri.....	1	0	1
New York.....	1	0	1
Ohio.....	6	1	7
Pennsylvania.....	3	0	3
Texas ¹	1	0	1
Washington.....	0	1	1
West Virginia.....	1	0	1
Total.....	22	12	34

Percentage passed, 64.7.

MIAMI MEDICAL COLLEGE, Cincinnati.

J. C. Oliver, M.D., Dean. Graduates in 1904, 27.

*State Examinations.*³

	Passed.	Failed.	Total.
California.....	0	1	1
Illinois.....	0	2	2
Kansas.....	1	0	1
Massachusetts.....	1	0	1
Minnesota.....	0	1	1
Missouri.....	0	1	1
Ohio.....	15	0	15
Washington.....	1	0	1
West Virginia.....	3	1	4
Total.....	21	6	27

Percentage passed, 81.4.

OHIO MEDICAL UNIVERSITY, Columbus.

George M. Waters, M.D., Dean. Graduates in 1904, 41.

State Examinations.

	Passed.	Failed.	Total.
Illinois.....	2	0	2
Indiana.....	1	0	1

¹ Not official.² None of class of 1904.—Dean.³ No reply from dean.

	Passed.	Failed.	Total.
Massachusetts.....	1	0	1
Mississippi ¹	1	0	1
Missouri.....	0	1	1
Ohio	30	2	32
Oregon.....	0	1	1
Pennsylvania	2	0	2
Texas ¹	1	2	3
Utah	1	0	1
Washington.....	1	0	1
West Virginia.....	3	0	3
Wisconsin.....	1	0	1
Total.....	44	6	50

Percentage passed, 88.

OHIO WESLEYAN UNIVERSITY, Cleveland, Cleveland College of Physicians and Surgeons.

R. E. Skeel, M.D., Dean. Graduates in 1904, 19.

State Examinations.

	Passed.	Failed.	Total.
Arizona.....	0	1	1
California.....	1	1 ²	2
Indiana.....	3	0	3
New York.....	1	0	1
Ohio	11	0	11
Total	16	2	18

Percentage passed, 88.8.

PULTE MEDICAL COLLEGE, Cincinnati.

Charles E. Walton, M.D., Dean. Graduates in 1904, 7.

State Examinations.

	Passed.	Failed.	Total.
Iowa	0	1 ³	1
Massachusetts.....	0	1 ³	1
Ohio	4	0	4
Texas ¹	1	0	1
Washington	0	1	1
West Virginia.....	1	0	1
Total.....	6	3	9

Percentage passed, 66.7.

¹ Not official.

² Class of 1898.—Dean.

³ Class of 1902.

STARLING MEDICAL COLLEGE, Columbus.

Starling Loving, M.D., Dean. Graduates in 1904, 33.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	3	1	4
North Dakota.....	1	0	1
Ohio	27	2	29
Oregon	0	1	1
Pennsylvania	2	3	5
Tennessee	0	1	1
Washington	1	2	3
West Virginia.....	2	0	2
Total.....	36	10	46

Percentage passed, 78.2.

TOLEDO MEDICAL COLLEGE, Toledo.

Park L. Myers, M.D., Secretary. Graduates in 1904, 7.

*State Examinations.*²

	Passed.	Failed.	Total.
Arizona.....	0	1	1
Ohio	3	2	5
Total.....	3	3	6

Percentage passed, 50.

UNIVERSITY OF CINCINNATI, Cincinnati, Medical College of Ohio.

P. S. Conner, M.D., Dean. Graduates in 1904, 46.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	1	2
Idaho.....	1	0	1
Indiana.....	2	0	2
Kansas	0	1	1
Missouri.....	1	0	1
North Carolina.....	1	0	1
North Dakota.....	0	2	2
Ohio.....	40	0	40
Oregon.....	2	0	2
Tennessee.....	1	0	1
Vermont.....	1	0	1
Virginia	1	0	1
Total.....	51	4	55

Percentage passed, 90.9.

¹ No reply from dean.² The secretary reports that of the 7 graduating in 1904, all but one have passed the state examinations, which makes 85+ per cent. passing.

WESTERN RESERVE UNIVERSITY, Cleveland.

B. L. Milliken, M.D., Dean. Graduates in 1904, 31.

*State Examinations.*¹

	Passed.	Failed.	Total.
Kentucky.....	1	0	1
Missouri.....	1	0	1
New York.....	1	0	1
Ohio.....	26	0	26
Oregon.....	0	1	1
Pennsylvania.....	0	1	1
Texas ²	1	0	1
Washington.....	1	0	1
Total.....	31	2	33

Percentage passed, 93.9.

Oregon.**UNIVERSITY OF OREGON, Portland.**

S. E. Josephi, M.D., Dean. Graduates in 1904, 17.

State Examinations.

	Passed.	Failed.	Total.
Oregon.....	15	0	15
Washington.....	3	0	3
Total.....	18	0	18

Percentage passed, 100.

WILLAMETTE UNIVERSITY, Salem.

W. H. Byrd, M.D., Dean. Graduates in 1904, 8.

*State Examinations.*¹

	Passed.	Failed.	Total.
Oregon.....	8	0	8
Washington.....	1	1	2
Total.....	9	1	10

Percentage passed, 90.

Pennsylvania.**HAHNEMANN MEDICAL COLLEGE AND HOSPITAL, Philadelphia.**

Charles M. Thomas, M.D., Dean. Graduates in 1904, 69

State Examinations.

	Passed.	Failed.	Total.
Arizona.....	1	0	1
Connecticut.....	3	1	4
Delaware.....	1	0	1
Indiana.....	1	0	1

¹ No reply from dean.² Not official.

	Passed.	Failed.	Total.
Maine	1	0	1
Maryland.....	2	0	2
Massachusetts.....	1	0	1
Minnesota	0	1	1
Missouri.....	1	0	1
Montana.....	0	1	1
New Jersey.....	7	1	8
New York.....	6	0	6
Ohio	1	0	1
Pennsylvania.....	54	0	54
Virginia.....	3	0	3
Washington.....	2	0	2
Total.....	84	4	88

Percentage passed, 95.4.

JEFFERSON MEDICAL COLLEGE, Philadelphia.

J. W. Holland, M.D., Dean. Graduates in 1904, 165.

State Examinations.

	Passed.	Failed.	Total.
California.....	2	3 ¹	5
Connecticut.....	1	0	1
Delaware	1	0	1
Georgia.....	2	0	2
Idaho.....	0	1	1
Illinois.....	2	0	2
Indiana.....	4	1	5
Iowa	13	0	13
Kansas	1	0	1
Maine.....	1	0	1
Maryland.....	1	0	1
Massachusetts.....	9	1	10
Michigan.....	1	0	1
Minnesota	2	0	2
Missouri.....	1	0	1
Nebraska	1	0	1
New Jersey.....	11	2	13
New York	11	2	13
North Carolina.....	1	0	1
North Dakota.....	2	0	2
Ohio	5	0	5
Oklahoma ²	1	1	2
Oregon.....	1	0	1

¹ Classes of 1897, 1893, 1902.

² Not official.

	Passed.	Failed.	Total.
Pennsylvania	99	12	111
Rhode Island.....	4	0	4
South Carolina.....	1	0	1
Tennessee.....	1	0	1
Utah	1	0	1
Vermont.....	2	0	2
Virginia.....	1	1	2
Washington.....	4	0	4
West Virginia.....	3	0	3
Total.....	190	24	214
Percentage passed, 88.8.			

MEDICO-CHIRURGICAL COLLEGE, Philadelphia.

Seneca Egbert, M.D., Dean.¹ Graduates in 1904, 70.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	0	1
Delaware.....	5	0	5
Indiana.....	1	0	1
Iowa	1	0	1
Maine	1	0	1
Minnesota.....	1	0	1
Missouri.....	1	0	1
Nebraska.....	1	0	1
New Jersey	8	1 ²	9
New York.....	1	0	1
North Dakota.....	1	0	1
Ohio	1	0	1
Pennsylvania	58	20	78
Rhode Island.....	1	0	1
Utah	2	0	2
Virginia.....	1	0	1
Total.....	85	21	106
Percentage passed, 80.2.			

TEMPLE COLLEGE, Philadelphia.

I. Newton Snively, M.D., Dean. Graduates in 1904, 2.

State Examinations.

	Passed.	Failed.	Total.
Pennsylvania	1	0	1

¹ The dean takes exception to counting a failure, when an applicant subsequently passes. The tables are for number of examinations and not for number of individuals examined. To compute results upon individuals would require securing the name of every person examined in every state. As the statistics as published are prepared in the same manner for all the colleges no injustice is done to any.

² Class of 1903.

UNIVERSITY OF PENNSYLVANIA, Philadelphia.

Charles H. Frazier, M.D., Dean. Graduates in 1904, 96.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	1	0	1
Arkansas ¹	1	0	1
California.....	2	0	2
Connecticut.....	5	0	5
Delaware.....	1	0	1
District of Columbia.....	1	0	1
Illinois.....	2	0	2
Indiana.....	1	0	1
Iowa.....	1	0	1
Louisiana.....	1	0	1
Maine.....	1	0	1
Maryland.....	1	0	1
Massachusetts.....	2	0	2
Minnesota.....	1	0	1
New Jersey.....	3	0	3
New York.....	15	1	16
North Carolina.....	1	0	1
Ohio.....	1	0	1
Pennsylvania.....	75	5	80
Rhode Island.....	1	0	1
South Carolina.....	1	0	1
Tennessee.....	3	0	3
Washington.....	2	1	3
Wisconsin.....	1	0	1
Total.....	124	7	131

Percentage passed, 94.6.

WESTERN UNIVERSITY OF PENNSYLVANIA, Pittsburg.

J. C. Lange, M.D., Dean. Graduates in 1904, 51.

*State Examinations.*²

	Passed.	Failed.	Total.
Arizona.....	1	0	1
California.....	2	0	2
New York.....	2	0	2
Ohio.....	2	0	2
Pennsylvania.....	51	12	63
West Virginia.....	2	0	2
Total.....	60	12	72

Percentage passed, 83.3.

¹ Not official.² No reply from dean.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Philadelphia.
Clara Marshall, M.D., Dean. Graduates in 1904, 43.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	0	1
Connecticut.....	1	0	1
District of Columbia.....	0	2	2
Louisiana.....	2	0	2
Massachusetts.....	10	0	10
Missouri.....	1	0	1
New Jersey.....	2	1 ²	3
New York.....	10	0	10
Pennsylvania.....	19	1	20
South Carolina.....	1	0	1
South Dakota.....	1	0	1
Vermont.....	1	0	1
Total.....	49	4	53

Percentage passed, 92.4.

South Carolina.

MEDICAL COLLEGE OF SOUTH CAROLINA, Charleston.

Francis L. Parker, M.D., Dean. Graduates in 1904, 23.

State Examinations.

	Passed.	Failed.	Total.
California.....	0	1	1
Georgia.....	1	0	1
Louisiana.....	1	0	1
Massachusetts.....	1	0	1
New York.....	1	0	1
Pennsylvania.....	1	0	1
South Carolina.....	19	1	20
Total.....	24	2	26

Percentage passed, 92.3.

Tennessee.

CHATTANOOGA NATIONAL MEDICAL COLLEGE, Chattanooga.

T. W. Haigler, M.D., Dean. Graduates in 1904, 1.

*State Examinations.*¹

	Passed.	Failed.	Total.
Tennessee.....	0	4	4

¹ No reply from dean.

² Class of 1903.

GRANT UNIVERSITY, Chattanooga, Chattanooga Medical College.
E. A. Cobleigh, M.D., Dean. Graduates in 1904, 37.

State Examinations.¹

	Passed.	Failed.	Total.
Alabama ²	10	2	12
Georgia.....	3	2	5
Mississippi ³	0	1 ⁴	1
Missouri.....	0	1	1
North Carolina.....	1	2	3
South Carolina.....	0	1	1
Tennessee.....	12	2	14
Texas ⁵	1	0	1
Washington.....	0	1	1
Total.....	27	12	39

Percentage passed, 69.2

KNOXVILLE MEDICAL COLLEGE, Knoxville.

H. M. Green, M.D., Secretary. Graduates in 1904, 8.

State Examinations.

	Passed.	Failed.	Total.
Kentucky.....	0	1 ⁴	1
Mississippi ³	0	1 ⁵	1
Tennessee.....	0	1 ⁴	1
Total.....	0	3	3

MEMPHIS HOSPITAL MEDICAL COLLEGE, Memphis.

W. B. Rogers, M.D., Dean. Graduates in 1904, 153.

State Examinations.

	Passed.	Failed.	Total.
Alabama ²	11	0	11
Arkansas ²	1	1	2
Georgia.....	1	0	1
Kansas.....	1	0	1
Louisiana.....	18	4	22
Mississippi ²	32	37 ⁵	69
North Carolina.....	1	0	1
Oklahoma ²	1	0	1
South Dakota.....	0	1	1

¹ No reply from dean.

² Not official.

³ May be an undergraduate.

⁴ Not a graduate of the school.—Dean.

⁵ May not be graduates.

	Passed.	Failed.	Total.
Tennessee.....	16	4	20
Texas ¹	6	11 ²	17
West Virginia.....	1	1	2
Total.....	89	59 ³	148
Percentage passed, 60.1.			

TENNESSEE MEDICAL COLLEGE, Knoxville.

S. L. Jones, M.D., Secretary. Graduates in 1904, 10.

*State Examinations.*⁴

	Passed.	Failed.	Total.
Missouri.....	1	0	1
North Carolina	1	1	2
Tennessee.....	3	2	5
Texas ¹	0	1	1
Virginia.....	0	2	2
Total.....	5	6	11
Percentage passed, 45.4.			

UNIVERSITY OF NASHVILLE, Nashville.

William G. Ewing, M.D., Dean. Graduates in 1904, 41.

*State Examinations.*⁴

	Passed.	Failed.	Total.
Alabama ¹	6	0	6
Arkansas ¹	1	0	1
Kansas.....	1	0	1
Louisiana.....	7	1	8
Mississippi ¹	5	3 ²	8
Missouri.....	2	0	2
New York.....	2	0	2
North Carolina.....	2	1	3

¹ Not official.

² May not be graduates.

³ It has come under my observation more than once where students have gone before boards for examination claiming to be from this college and who, in fact, were never here at all. Moreover, your list in reading "graduates" I believe reads wrong, for there is only one state in this section of the South (Louisiana) that requires an applicant shall first be a graduate in medicine before he may have privilege of board examination for license. You observe this leaves the door open for all classes of medical students, first, second, third and graduates to apply, and, indeed, any one, whether a college man or not who may be disposed to take the examination and is prepared to pay the examination fee. This condition exists in Tennessee, Mississippi, Arkansas, Texas, Alabama, Oklahoma, Indian Territory, etc., so you see not only our college, but all other colleges are charged up with a large number of failures who are undergraduates—all the way from first course men to seniors. In my opinion it is only right for an examining board to charge against colleges degree men when they fail. It is only these men that the college is responsible for.—*In a letter from the Dean.*

⁴ No reply from dean.

	Passed.	Failed.	Total.
Tennessee.....	11	1	12
Texas ¹	2	0	2
	—	—	—
Total.....	39	6	45

Percentage passed, 86.6.

UNIVERSITY OF THE SOUTH, Sewanee, Sewanee Medical College.
J. S. Cain, M.D., Dean. Graduates in 1904, 24.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	1	0	1
California	1	1	2
Georgia.....	1	0	1
Louisiana.....	2	6	8
Maryland.....	0	1	1
Massachusetts.....	2	3	5
Mississippi ¹	1	3 ²	4
Missouri.....	0	1	1
North Carolina.	1	1	2
Pennsylvania	6	11	17
South Carolina.....	2	0	2
Tennessee.....	2	0	2
Texas ¹	1	0	1
Virginia.....	6	6	12
West Virginia.....	5	1	6
	—	—	—
Total ³	31	34	65

Percentage passed, 47.7.

¹ Not official.

² May not be graduates.

³ The dean writes "These figures are certainly incorrect and damaging to this school. They show a total of rejections and passes from certain states greater than we have had students from these states during the past three years.

"Again I have what I think is positive information, that many of these reports are false."

As no special exception was taken to any specific figures we were not able to take it up with the individual boards to ascertain whether an error existed or not, as was done in several other instances. A study of the figures shows that there were 41 more state examinations taken than there were graduates in 1904. Not 41 more persons, but 41 more examinations, for one person may take several examinations, especially if he has failed. Again 7 more than the number of graduates received state licenses. This seems to show that graduates of this university are apt to make several trials in various states before finding a locality to their liking. Should they happen to fail in their trials, it appears worse for the college than it may really be to those who make but a surface examination. As, with but a single exception, the returns as published are the figures furnished by the boards of examiners as authentic, it is felt that no changes can be made.

UNIVERSITY OF TENNESSEE, Nashville.

Paul F. Eve, M.D., Dean. Graduates in 1904, 30.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	3	1	4
Arkansas ²	1	1	2
Florida ²	1	0	1
Illinois.....	1	0	1
Louisiana.....	1	1	2
Mississippi ²	3	0	3
Missouri.....	1	0	1
Oklahoma ²	0	1	1
Tennessee.....	11	8	19
Texas ²	3	3	6
Virginia.....	2	0	2
Washington.....	0	1	1
Total.....	27	16	43

Percentage passed, 62.8.

UNIVERSITY OF WEST TENNESSEE, Jackson.

M. V. Lynk, M.D., President. Graduates in 1904, 13.

State Examinations.

	Passed.	Failed.	Total.
Arkansas ¹	3	0	3
Texas ¹	0	1	1
Total.....	3	1	4

Percentage passed, 75.

VANDERBILT UNIVERSITY, Nashville.

Lucius E. Burch, M.D., Secretary. Graduates in 1904, 34.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	4	0	4
Arizona.....	1	0	1
Arkansas ¹	3	0	3
California.....	2	1	3
Idaho.....	1	0	1
Louisiana.....	4	0	4
Massachusetts.....	0	1 ²	1

¹ No reply from dean.² Not official.³ Class of 1890.

	Passed.	Failed.	Total.
Mississippi.....	0	1	1
North Carolina.....	1	1 ¹	2
Pennsylvania	1	0	1
South Carolina.....	1	0	1
Tennessee.....	25	0	25
Texas ²	1	0	1
Virginia.....	2	0	2
Washington	1	0	1
Wisconsin.....	1	0	1
Total.....	48	4	52

Percentage passed, 92.3.

WALDEN UNIVERSITY, Nashville, Meharry Medical College.
G. W. Hubbard, Dean. Graduates in 1904, 57.

State Examinations.

	Passed.	Failed.	Total.
Alabama ³	3	0	3
Arkansas ⁴	10	1	11
California.....	0	1	1
Florida ²	1	0	1
Georgia	7	2	9
Illinois.....	2	1	3
Iowa	0	1	1
Louisiana.....	1	0	1
Mississippi ²	1	1	2
Missouri.....	2	1	3
South Carolina.....	0	1	1
Tennessee.....	7	4	11
Texas ²	2	2	4
West Virginia.....	1	0	1
Total.....	37	15	52

Percentage passed, 71.1.

Texas.

BAYLOR UNIVERSITY, Dallas.

E. H. Cary, M.D., Dean. Graduates in 1904, 12.

State Examinations.²

	Passed.	Failed.	Total.
New Jersey.....	1	0	1
Texas ²	0	1	1
Total.....	1	1	2

Percentage passed, 50.

¹ Class of 1901 withdrew from examination.

² Not official.

³ No reply from dean.

BELL MEDICAL COLLEGE, Dallas.

Arthur C. Bell, M.D., Dean. Graduates in 1904, 9.

DALLAS MEDICAL COLLEGE, Dallas.

Hugh L. McNew, Dean. Graduates in 1904, 25.

*State Examinations.*¹

	Passed.	Failed.	Total.
Arizona.....	0	1	1
Arkansas ²	1	0	1
California.....	1	1	2
Texas ²	2	2	4
Total.....	4	4	8

Percentage passed, 50.

FORT WORTH UNIVERSITY, Fort Worth.

Bacon Saunders, M.D., Dean. Graduates in 1904, 9.

State Examinations.

	Passed.	Failed.	Total.
Arkansas ¹	1	0	1
Texas ¹	1	0	1
Total.....	2	0	2

Percentage passed, 100.

GATE CITY MEDICAL COLLEGE, Texarkana.

J. W. Decker, M.D., Dean. Graduates in 1904, 26.

PHYSIO-MEDICAL COLLEGE OF TEXAS, Dallas.

R. L. Spann, M.D., Secretary. Graduates in 1904, 0.

SOUTHWESTERN UNIVERSITY MEDICAL COLLEGE, Dallas.

John O McReynolds, M.D., Dean. Graduates in 1904, 11.

UNIVERSITY OF TEXAS, Galveston.

W. L. Prather, M.D., President. Graduates in 1904, 23.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	1	0	1
California.....	1	0	1
Texas.....	20	0	20
Total.....	22	0	22

Percentage passed, 100.

¹ No reply from dean.² Not official.

Vermont.

UNIVERSITY OF VERMONT, Burlington.

H. C. Tinkham, M.D., Dean. Graduates in 1904, 55.

*State Examinations.*¹

	Passed.	Failed.	Total.
California.....	1	0	1
Connecticut.....	3	2	5
Maine.....	4	0	4
Massachusetts.....	16	4	20
New Hampshire.....	1	1	2
New York.....	3	3	6
Oklahoma ²	0	1	1
Pennsylvania.....	1	1	2
Rhode Island.....	2	1	3
South Dakota.....	0	1	1
Vermont.....	37	0	37
Total.....	68	14	82

Percentage passed, 82.9.

Virginia.

MEDICAL COLLEGE OF VIRGINIA, Richmond.

Christopher Tompkins, M.D., Dean. Graduates in 1904, 41.

State Examinations.

	Passed.	Failed.	Total.
District of Columbia.....	1	0	1
North Carolina.....	2	0	2
South Carolina.....	4	0	4
Virginia.....	34	3	37
West Virginia.....	11	1	12
Total.....	52	4	56

Percentage passed, 92.8.

UNIVERSITY COLLEGE OF MEDICINE, Richmond.

William R. Miller, M.D., Proctor. Graduates in 1904, 25.

State Examinations.

	Passed.	Failed.	Total.
New York.....	1	0	1
North Carolina.....	4	1 ³	5
Virginia.....	21	4 ⁴	25
West Virginia.....	10	0	10
Total.....	36	5	41

Percentage passed, 88.

¹ No reply from dean.² Not official.³ Class of 1903.⁴ One of class 1903, second examination.

UNIVERSITY OF VIRGINIA, Charlottesville.

William G. Christian, M.D., Dean. Graduates in 1904, 31.

*State Examinations.*¹

	Passed.	Failed.	Total.
Alabama ²	4	0	4
California.....	0	1	1
District of Columbia.....	0	1	1
Georgia.....	1	0	1
Mississippi ²	1	0	1
New Hampshire.....	1	1	2
New York.....	4	0	4
North Carolina.....	5	0	5
Ohio.....	2	0	2
Virginia.....	10	0	10
West Virginia.....	2	0	2
Total.....	30	3	33

Percentage passed, 91.

Wisconsin.

MILWAUKEE MEDICAL COLLEGE, Milwaukee.

William H. Earles, M.D., Dean. Graduates in 1904, 29.

State Examinations.

	Passed.	Failed.	Total.
Missouri.....	1	0	1
North Dakota.....	4	1	5
South Dakota.....	1	0	1
Total.....	6	1	7

Percentage passed, 85.7.

WISCONSIN COLLEGE PHYSICIANS AND SURGEONS, Milwaukee.

W. H. Washburn, M.D., Dean. Graduates in 1904, 29.

*State Examinations.*¹

	Passed.	Failed.	Total.
Illinois.....	1	0	1
North Dakota.....	0	1	1
Total.....	1	1	2

Percentage passed, 50.

NON-GRADUATES.

State Examinations.

	Passed.	Failed.	Total.
Alabama ¹	4	9	13

¹ No reply from dean.² Not official.

	Passed.	Failed.	Total.
Arkansas ¹	7	1	8
Massachusetts.....	7	16	23
Mississippi ¹	45	59	104
Oklahoma ¹	0	3	3
Oregon.....	0	4	4
Texas ¹	26	52	78
West Virginia.....	54	22	76
Total.....	143	166	309

Percentage passed, 46.2.

Canada.

The returns from the various states for those presenting Canadian qualifications are not always distributed to the various colleges, some of them aggregating all Canadian qualifications under the head Canadian. This makes so much uncertainty for any one college that the details will be given only for those colleges who had a number of students to appear before the various boards; the remainder will be gathered into one group.

MCGILL UNIVERSITY, Montreal.

State Examinations.

	Passed.	Failed.	Total.
California.....	1	0	1
Connecticut.....	2	0	2
District of Columbia.....	1	0	1
Illinois.....	1	0	1
Iowa.....	1	0	1
Louisiana.....	1	0	1
Maine.....	1	0	1
Massachusetts.....	7	0	7
Michigan.....	2	0	2
New Hampshire.....	1	0	1
North Dakota.....	2	0	2
Ohio.....	2	0	2
Oregon.....	1	0	1
Pennsylvania.....	2	0	2
Vermont.....	1	0	1
Washington.....	1	0	1
Total.....	27	0	27

Percentage passed, 100.

¹ Not official.

UNIVERSITY OF TORONTO,¹ Toronto.*State Examinations.*

	Passed.	Failed.	Total.
California.....	1	1	2
Illinois.....	3	0	3
Indiana.....	1	0	1
Iowa.....	1	0	1
Minnesota.....	1	0	1
Michigan.....	2	0	2
Montana.....	1	0	1
New Jersey.....	2	0	2
North Dakota.....	3	0	3
Ohio.....	2	0	2
Pennsylvania.....	2	0	2
Washington.....	9	2	11
West Virginia.....	1	0	1
Wisconsin.....	2	0	2
Total.....	31	3	34
Percentage passed, 91.1.			

UNIVERSITY LAVAL, Quebec.

State Examinations.

	Passed.	Failed.	Total.
California.....	0	1	1
Illinois.....	1	0	1
Louisiana.....	1	0	1
Maine.....	5	0	5
Massachusetts.....	3	3	6
Minnesota.....	1	0	1
New Hampshire.....	0	3	3
Total.....	11	7	18
Percentage passed, 61.1.			

QUEEN'S UNIVERSITY, Kingston.

State Examinations.

	Passed.	Failed.	Total.
Minnesota.....	2	0	2
Montana.....	1	0	1
Pennsylvania.....	1	0	1
Wisconsin.....	1	0	1
Total.....	5	0	5
Percentage passed, 100.			

¹ Including those returned from Trinity University and Trinity College.

WESTERN UNIVERSITY, London.

State Examinations.

	Passed.	Failed.	Total.
Indiana	1	0	1
Michigan.....	1	0	1
Nebraska.....	1	0	1
North Dakota.....	1	0	1
Oregon	1	0	1
Total.....	5	0	5

Percentage passed, 100.

Canadian Degrees.¹*State Examinations.*

	Passed.	Failed.	Total.
District of Columbia ²	1	0	1
Montana ³	0	1	1
New Hampshire ⁴	0	1	1
New York ⁵	16	0	16
Rhode Island ⁶	1	0	1
Utah ⁷	1	0	1
Total.....	19	2	21

FOREIGN QUALIFICATIONS.

In some states the classification includes all foreign qualifications in one division; in some of the others, where a distribution is attempted, the name of the degree giving institution is not always given with accuracy—as the information is not at hand giving the number graduating from these institutions to show the proportion applying for practice in the United States, the returns will be included in a single table in this article.

State Examinations.

	Passed.	Failed.	Total.
Alabama	1	0	1
Arkansas	1	0	1
California	8	2	10
Connecticut	7	6	13
Georgia	1	0	1
Illinois.....	8	1	9

¹ Including the other universities, or the returns in reports not distributed.² University not indicated.³ Dalhousie.⁴ Bishops.⁵ Manitoba.

	Passed.	Failed.	Total.
Indiana	2	1	3
Kansas	1	0	1
Maine.....	1	0	1
Massachusetts	11	4	15
Michigan.....	1	0	1
Minnesota.....	1	1	2
Montana	2	1	3
Nebraska.....	1	0	1
New Jersey.....	0	6	6
New York	40	26	66
North Dakota.....	3	0	3
Ohio	3	0	3
Oregon	2	0	2
Pennsylvania	9	8	17
South Dakota.....	1	0	1
Vermont	1	0	1
Virginia.....	0	1	1
Washington	3	3	6
West Virginia	1	1	2
Total.....	108	61	169

Percentage passed, 64.1.

In the tables just given, only those colleges now engaged in teaching are included. There have been a number of changes in our medical schools. Some, with rare courage, have declined to continue their courses because better facilities were offered elsewhere; others have united for their mutual benefit; others have been forced to close doors. As a consequence there are a number of qualified physicians to-day, graduates of schools no longer granting diplomas. When such a one takes a state examination, the inference is fair that he has been practising elsewhere and is changing his location. A tabulation of these graduates will serve to indicate, to some degree, the amount of migration, and be helpful in impressing the desirability of arranging some method, by which the tried and accepted physician of one locality may be able to retain his privileges on moving to another state.

Extinct Colleges.¹

State Examinations.

	Passed.	Failed.	Total.
Arizona	0	2	2

¹ This does not claim to be complete; some of the colleges may not have been "caught" in the tabulation.

	Passed.	Failed.	Total.
Arkansas.....	1	0	1
California	5	4	9
Idaho	1	2	3
Illinois	2	0	2
Indiana	2	1	3
Louisiana	1	0	1
Massachusetts	2	0	2
Minnesota	0	2	2
Missouri	1	0	1
Montana	0	4	4
New Hampshire	1	0	1
New York	1	1	2
North Carolina	1	0	1
North Dakota.....	1	0	1
Ohio	3	0	3
Oregon	2	0	2
Pennsylvania	0	1	1
Rhode Island	1	0	1
South Dakota.....	1	1	2
Virginia	1	0	1
Washington	3	1	4
West Virginia.....	1	0	1
Total.....	31	19	50
Percentage passed, 62.			

A careful study of these figures may teach us a great deal, but there are certain errors which must be avoided. One cannot classify the colleges in order of excellence by the per cent. of those who pass the state examination. Before any individual college is judged by this standard, examination should be made into the conditions. A man may barely pass his college examination, and receive his degree by the skin of his teeth; he may apply for state examination in three or four states and fail in each state twice, each failure counting damnably against his college, while with another college, the standing of the entire class may be low and yet, in the state examination, manage to squeeze through this at a bare passing average, making a clean record for their college. The accuracy of the face of the returns depends upon the numbers, and if one cares to aggregate these studies for the past years, a uniformly high percentage of passing strengthens the assumption of good work done.

Again, in making comparison, it is well to remember the personal equation of the examiner. The compiler of this report made an investigation of this some years ago, and was pleased to conclude that the standard was surprisingly uniform throughout the country. At the same time it will not serve the truth to draw conclusions from these figures as one would form a set of anthropometric tables carefully recording the results of tape and scales.

OBSERVATIONS IN PASSING.

The June number of *The World's Work* contains a brief article on "The Value of a Farm Census," wherein is demonstrated the value of the reports of the Kansas Board of Agriculture. The article shows this value to result from the careful collection and compilation of a number of definite and determinable facts about the Kansas farms. Having the facts at hand the weak places were discovered and methods for strengthening the more readily devised. It is another illustration of what had previously been seen in the value of accurately gathered vital statistics.

What is true of a farm census; what is true of vital statistics is also true when applied to other but similar subjects of investigation. It is hoped that it is the proper sort of pride that leads the management of the Bulletin to call attention to its pages, which are so largely devoted to the gathering of just such accurate figures. Notably is this seen in the admirable and complete report by the Committee on Teaching Hygiene in the last number; and, in a much smaller degree, to the report on examination to be found in this number.

.

A committee of distinguished philologists who are earnestly engaged in missionary effort to simplify the English spelling, has sent out the following for signature.

A PROMISE AS TO TWELVE WORDS.

In order to testify my approval of the principle of a simplification of English spelling, and to encourage the practice, I agree to adopt for customary use in my own personal correspondence the following twelve simplified spellings, heretofore recommended and used by the National Educational Association, namely,

program	prolog	thoro
catalog	demagog	thorofare
decalog	tho	thru
pedagog	altho	thruout

It is purposed to publish the list of signers, which already in the preliminary canvass, contains the names of a number of literary and scientific gentlemen, to influence the general public. Should

any of our readers wish to help the work along, let him send his promise to the secretary of the committee, Prof. Charles P. G. Scott, 150 Woodworth Ave., Yonkers, N. Y.

.

Dr. Achilles Rose, of New York, in a communication to the *Medical Review of Reviews*, for June, 1905, takes exception to the use of "optometer" and "optometry" in their present significances he says *opto* in the Greek, means to roast or boil; optaneion is a kitchen; optiticos, somebody who understands to roast to perfection. We are thankful that Dr. Rose has at least revealed the true significance of a "graduate *optician*," what a roaster he is at times!

.

The British Medical Journal, for June 3, 1905, gives a series of articles on the condition of the medical profession in most countries in Europe, and in the British Provinces. It gives the educational requirements to secure a right to practise, and some description of the social and economic conditions of the profession. It is worth the careful study of all physicians, especially of those who are interested in the sociologic status of the physician.

LITERATURE NOTES.

- I. THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA. Eighth Decennial Revision. By authority of the United States Pharmacopoeial Convention, held at Washington, A.D. 1900. Revised by the Committee of Revision and published by the Board of Trustees. Official from September 1, 1905. Philadelphia: Agents, P. Blakiston's Son and Co. pp. 692.
- II. CHANGES IN THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA. Eighth Decennial Revision. BY REID HUNT AND MURRAY GALT MOTTER. Hygienic Laboratory. Bulletin No. 23, August 1, 1905. Washington: Government Printing Office. pp. 122.

An interesting study, and one not altogether without value could be made of the rise and fall of drugs in the successive editions of the pharmacopoeia. The writer's first pharmacopoeia was the fifth revision a little volume of less than 400 pages, each page an inch shorter and narrower than the latest edition. While

we leave to other journals to call attention to the more marked changes, a few of great importance, made to conform to the standards adopted by the International Conference on Potent Remedies held at Brussels, in 1902, will be noted. These changes are for the purpose of making uniform the strength of potent remedies in all parts of the world. The necessity for this is another evidence of changing condition in the world's society. The strength of the tincture of aconite has been reduced from 35 per cent. to 10 per cent., of tincture of veratrum from 40 per cent. to 10 per cent., while the strength of the tincture of stropanthus has been increased from 5 to 10 per cent. These strengths will be official after September 1st, next.

We cannot close this notice without commending the committee for the thoroughness and care of its work. It is not merely a larger volume than the earlier editions, it is a bigger book in every way.

II. This Bulletin issued by the Public Health and Marine Hospital Service is a valuable companion to the pharmacopoeia. It calls attention to the changes in the present edition, and is written for physicians, not for pharmacists. Hence it calls attention to those things which a physician should know, that he may use the new official preparation intelligently. It does not replace the pharmacopoeia, but serves to point out that which he ought to look for in the larger volume.

THE INN OF REST. DIVERS EPISODES IN HOSPITAL LIFE RELATIVE TO THE DOCTOR, THE NURSE, THE PATIENT. Edited by SHELDON E. AMES. Volume VII of the Doctor's Recreation Series. 1905. The Saalfield Publishing Co., Akron, O. pp. 267. Price, \$2.50.

Like the boy who grieved at the sight of plum pudding, because he had eaten so much roast beef, the reviewer of this series wishes he had saved some of the praise for the previous volumes until now. Unlike the boy, the enjoyment of the previous volumes has not produced satiety, and the appetite is as keen for this volume as for the first. The editor has gathered seventeen articles anent hospitals from various sources, and the owners of the copyrights have been very kind, enabling him to secure his choice. The volume has four illustrations, and is issued in the handsome style that characterizes the series.

THIRTY-SEVENTH ANNUAL REPORT OF THE STATE BOARD OF
CHARITIES OF THE STATE OF NEW YORK—1903.

VOL. I.—TEXT, APPENDED PAPERS; pp. 1022, 327, 28.

VOL. II.—PART I—MANUAL OF CONSTITUTIONAL PROVISIONS, BY-LAWS
AND RULES.

PART II—DIRECTORY OF OFFICERS, ETC., CONNECTED WITH PUBLIC
INSTITUTIONS; pp. 1469.

VOL. III.—CHARITY LEGISLATION IN NEW YORK, 1609 TO 1900; pp. 1300.
STATISTICAL VOLUME—APPENDIX TO VOL. I; pp. 915, pp. 1300.

These volumes present a fund of information for the student of the retrogressing classes, as the report has to do with the care of the degenerates in the Empire state. One turns to Volume III with especial interest for its historic value. It gives a digest of charitable legislation in New York from the earliest records to the close of the last century. Many of the very early records are missing. But we learn that early penalties were used in part for the poor, who were supported by church collections, fines and voluntary offerings. In 1651 it was arranged, "in order not to subject the poor to inconvenience, particular inhabitants requesting it may be privileged to lay in small beer free of excise with liberty to retail the same by small measure."

In 1652 a site for an almshouse is granted at Albany; in 1653 provision is made for the burial of friendless strangers. In 1654 Amsterdam sent over dependent children from its almshouse, seeking homes for them in the new world.

We must not be tempted to quote further. The digest is divided into three parts, giving in turn the laws under the Dutch Colony, 1609-1664; the English Colony, 1664-1776; and the seeking for State, 1776-1900.

We agree with the State Board of Charities that this volume will stimulate interest in and encourage the study of the Charity laws of the state, awakening an intelligent spirit of inquiry productive of good results.

The July number completes the first volume of *Ophthalmology*, and it has maintained position taken in the first number. Dr. Würdemann and his staff are to be complimented upon the excellence of their work.

The *Arena* for August, publishes the last of the series of papers on Pennsylvania politics. It is not often that a Jeremiah must

change his prophesying because the conditions lamented have been changed, and there are the signs of the people having heard a Jonah and are repenting at his preaching. But the change in the course of events at Philadelphia, made such a change necessary at this time.

In these days of multiplied centers of interest in the world's activities, it is pleasant to have a wide view given briefly and clearly as is done in the *Literary Digest*.

Prof. James K. Young, of the Philadelphia Polyclinic, has a manual and atlas of orthopedic surgery in the press. Judging from some advance sheets this work, as the publishers prophesy, will indeed occupy a very important place in medical literature. It is to be issued by P. Blakiston's Son & Co., Philadelphia, which guarantees the excellence of the mechanical work, in a volume of about 900 pages with upwards of 800 illustrations. These, as shown in the advance pages, are admirable both as to subject and execution. Advance orders will be received at \$10 for cloth and \$12 for half-morocco binding.

The report of the Commissioner of Education for 1903 has been received. Judging from those parts of the report presenting facts with which we are familiar, these reports annually are growing more accurate, which means greater painstaking in the office. With the resources of the government at hand no statement need be made that has not been verified. It is gratifying to see that this care is taken more frequently.

BULLETIN

OF THE

American Academy of Medicine.

VOL. VII.

ISSUED OCTOBER, 1905.

No. 3.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or address published in the BULLETIN.

STATE REGULATIONS TO PRACTISE MEDICINE.

A review of legislation regulating the practice of medicine in the United States would be divided naturally into three periods. The earlier attempts, such as gave the State Medical Societies, *e. g.*, of New Jersey and New York, the right to issue diplomas or certificates conferring the legal right to practise. The period of anarchy or chaos, when the laws were permitted to slumber unheeded, or were repealed, and the only qualification actually required for any one to offer his services as a practiser in medicine was a shingle, part of which had come in contact with the paint brush. Let it not be thought that in these dark days this minimum requirement was the only requirement possessed by the majority of medical men. Many were more carefully trained academically than is now required by our strictest law. The third period can be called the Renaissance. The very earliest dawn was the examination of surgeons for the volunteer forces in Illinois, out of which grew the first law¹—that fostered by Dr. J. B. Rauch, the secretary of the State Board of Health of that State. Not long after² Dr. Perry H. Millard, of Minnesota, introduced the state examination into American practice, and the good work started by the twain has been extending in depth and width ever since. The provisions of the laws of the various states have not always been free from error; nor always planned for the single purpose of police protection for the people. The execution

¹ Taking effect July 1, 1877.

² The first Minnesota law went into effect July 1, 1887.

of the laws has not always been carried out without friction. The medical schools have not always cheerfully and heartily complied with the limitation of the law. Even now, much remains to be done before the practical reformer can rest, and the idealist must stretch out for the unattainable. But withal, there has been a growth. The medical profession is more self-respecting, more zealous of the educational standard of its members, more zealous for the proper fulness of education than it was a decade ago. As this spirit is cherished and developed, there is a chance for a greater uniformity in the laws, of an earnest desire on the part of the teachers of medicine to fairly make the standard of instruction represent the statements in the catalogs, to say early to the incompetent, it were better for you to make some other calling your life work. A spirit of coöperation on the part of the state examiners whereby they and the colleges will in deed as now in appearance be striving to comply with all the provisions of the laws, until the time will come when many of these provisions will be archaic, and a student exhibiting his diploma will not also be required to submit a sworn statement of the actual time given to his studies, and the number of subjects studied.

A summary of the requirements of the laws in the various states is of value to a number of classes of people. A medical student will know what to do to secure a right to practise; a medical teacher will be able to see at a glance whether his college is fitting men to practise anywhere in the country, or only locally. Medical examiners can gain some knowledge of the laws of other states, the public spirited physician can be informed of the legal status of his profession throughout the Union. The summary is arranged alphabetically by states, and in most instances following a tabulated form of statement, which, while mechanical, affords greater opportunity for convenient comparison.

There are some features which are in common in all the acts that need but a single mention. The medical officers of the United States' services are exempted when engaged in their official duties. An unlicensed physician may be called from another state in consultation, but he cannot open an office or appoint a place for such consultations. A licensed physician in one state whose residence is on the border of another state, can cross the

line and visit his patients, but his office must be in the state where he is licensed. Emergency services in cases of accident or sudden illness are permitted. Actual students may be permitted to prescribe under the direction of their preceptors in many states.

The provisions of the laws relating to vagaries in method to heal the sick, vary and are not considered in this report, as it is an attempt to furnish information for the true physician to acquire the legal right to practise, and not show the weaknesses of law-givers in affording opportunities for perverts to manifest their zeal.

In most of the states the fact of the advance of medical education is recognized, and provision is made making eligible the older men upon less vigorous collegiate requirements. Except when stated the requirements given in the report are for those who have recently graduated.

Before planning to appear before any board, it is necessary to apply to the executive officer for the necessary blank applications, and be informed of the routine of procedure, and for this reason many of the details are omitted from the summary.

ALABAMA.

Any one who cares to may apply for an examination to practise medicine in Alabama ; there are no educational requirements.

Examination.—Before the board of censors of any county medical society, or the board of censors of the state medical society in chemistry, anatomy, physiology, the etiology, pathology, symptomatology and diagnosis of diseases ; obstetrics and obstetrical operations ; gynecology, minor and major surgery, physical diagnosis, hygiene and medical jurisprudence. The examination is conducted by a trained examiner for all the boards. Only those who possess a diploma from a medical college recognized by the medical society of Alabama, may come up before a county board ; any one may appear before the state board.

Place and Time.—Before the state board at Montgomery, by appointment, both time and place by appointment before the county boards.

Registration.—A certificate of qualification is issued to those

who pass the examination, which must be recorded with the probate judge of the county of residence.

Fees.—For the examination, \$10.00 ; for recording, \$1.00.

*Reciprocity Regulation.*¹—None permitted by the law.

Remarks.—Major surgery may be omitted from the subjects of examination when a special certificate will be issued.

Executive Officer.—Dr. W. H. Sanders, secretary, State House, Montgomery.

ALASKA.

Has no medical practice act.²

ARIZONA.

Academic Requirement.—None.

Medical Requirement.—That prescribed by any medical college lawfully organized in the state or territory in which the college is situated. The applicant must have graduated and possess a diploma.

Examination before the board of medical examiners in anatomy, physiology, chemistry, gynecology, obstetrics, pathology, practice, surgery. If the applicant desires he may be examined in "the branches of the science and practice of medicine other than" those above enumerated, "by the member or members of the board, if there be any, of the particular school of medicine in his or her diploma."

Place and Time.—Phoenix, on first Monday of January, April, July, October.

Registration.—In a book kept by the secretary of the board of examiners.

Fees.—Two dollars with the application—for registration, \$10 for the examination.

Reciprocity Regulation.—No legal provision.

Remarks.—The board has power to revoke license under certain conditions.

Executive Officer.—Dr. Ancil Martin, secretary, Phoenix.

¹ The compiler wishes to acknowledge his indebtedness to the last (1903) report of the board of medical examiners for Maryland for many of the statements regarding reciprocity.

² According to a statement in the *Medical Sentinel*, an effort will be made to have congress enact a practice act for Alaska, during the coming winter. The effort should be seconded by every physician in the land.

ARKANSAS.

Academic Requirement.—None.

Medical Requirement.—None.

Examination.—Before one of three examining boards, known as the "Homeopathic State Medical Board," which shall examine those who wish to practise homeopathy; the "Eclectic State Medical Board," for those who wish to practise eclectic medicine; and the "Board of the Arkansas Medical Society," which examines all other applicants. The boards are entirely independent of each other; the examination shall be of an elementary and practical character, and to include anatomy, physiology, chemistry, materia medica, theory and practice of medicine, surgery and obstetrics.

Place and Time.—At places determined by each board on the second Tuesday of January, April, June and October.

Registration.—Record certificate from the board of examiners in the office of the county clerk in county of residence.

Fees.—Examination, \$10.00.

Reciprocity Regulation.—No legal provision.

Remarks.—A temporary license may be issued until the next meeting of the board of examiners.

Executive Officers.—Dr. J. P. Runyan, Little Rock, is secretary of the board of the Arkansas Medical Society; Dr. J. L. Vail, Little Rock, of the eclectic state medical board; Dr. V. H. Hallman, Hot Springs, of the homeopathic state medical board.

CALIFORNIA.

Academic Requirement.—That required by the Association of American Medical Colleges at the time when the candidate enters the medical school.

Medical Requirement.—Equivalent to that of colleges of the Association of American Colleges at the time the diploma was granted; or a license from a legally constituted institution which grants licenses only upon examination.

Examination.—Before the state board of medical examiners

in anatomy, physiology, bacteriology, pathology, chemistry and toxicology, surgery, obstetrics, materia medica and therapeutics, theory and practice of medicine.

Place and Time.—At San Francisco, on the first Tuesday of April, August and December. Appointments for examination may be made for other parts of the state.

Registration.—The certificate of the board of examiners must be recorded in the office of the county clerk of the county in which its holder is practising.

Fees.—For the examination, \$20.00.

Reciprocity Regulation.—The law permits the acceptance of a license of another state or territory, having equal requirements, provided the same recognition is made of the license of California. This part of the act has not been made effective.

Remarks.—The secretary of the board takes no part in the examination ; licenses may be revoked for certain causes.

Executive Officer.—Dr. Charles S. Tisdale, secretary, 530 California Street, San Francisco.

COLORADO.

In Colorado, physicians who have certain definite educational requirements, may be licensed without an examination. If these are not possessed, an examination is required.

SCHEDULE OF MINIMUM EDUCATIONAL REQUIREMENTS ADOPTED MAY 1, 1905.

Class A. For Applicants Graduating Prior to and Including 1893.—All applicants who graduated prior to July 1, 1893, must have been matriculated in, and graduated from, legally chartered and reputable medical colleges (at that time in good standing with the Colorado State Board of Medical Examiners), which required a preliminary examination for admission and a minimum of two winter courses of instruction in at least the following subjects, *viz.*: Anatomy, chemistry, physiology, pathology, surgery, practice of medicine, obstetrics, and materia medica and therapeutics (of the system peculiar to the college).

Class B. For Applicants Graduating in 1894 and 1895.—All applicants who graduated between July 1, 1893, and July 1, 1895, must have matriculated in, and graduated from, legally chartered and reputable medical colleges (at that time in good standing with the Colorado State Board of Med-

ical Examiners), which gave a minimum of twenty weeks of instruction in each twelve months of three separate years in at least the following subjects, *viz.*: Anatomy, chemistry, physiology, pathology, materia medica and therapeutics (of the system peculiar to the college), obstetrics, gynecology, surgery, medical jurisprudence, theory and practice of medicine and hygiene, and which required of their graduates of 1894 and 1895, as a matriculation regulation, a diploma of graduation from some approved university or literary, scientific, normal or high school, or a preliminary examination in all the several subjects embodied in the curriculum of graduation examination from a high school.

Class C. For Applicants Graduating in 1896, 1897, 1898 and 1899.—All applicants graduating between July 1, 1895, and January 1, 1900, must have matriculated in, and graduated from, legally chartered and reputable medical colleges (at that time in good standing with the Colorado State Board of Medical Examiners), which required of their graduates of 1896, 1897, 1898 and 1899 as a matriculation regulation a diploma of graduation from some approved university or literary, scientific, normal or high school, or a preliminary examination in all the several subjects embodied in the curriculum of an approved high school, and which gave to its students graduating in the years above named four full courses, in four separate years, of instruction in at least the following subjects, *viz.*: Anatomy, chemistry, physiology, pathology, materia medica and therapeutics (of the system peculiar to the college), surgery, theory and practice of medicine, bacteriology and obstetrics.

Class D. For Applicants Graduating in 1900 and Thereafter.—All applicants graduating after January 1, 1900, must have matriculated in, and graduated from, legally chartered and reputable medical colleges, which enforce the following requirements of matriculation, advanced standing, instruction and graduation.

Matriculation.—First. Creditable certificates of good moral character, signed by two physicians of good reputation in the state in which the applicant last resided.

Second. As evidence of preliminary education, as a minimum requirement any of the following: (a) A diploma or a certificate of graduation from an accredited four-year high school; (b) a certificate signed by a principal of a regularly organized approved high school, the faculty of a recognized literary or scientific college or university, State Superintendent of Public Instruction, Superintendent of Public Schools, or some duly appointed state board or person to conduct such an examination; or having successfully passed an examination in all the several branches embraced in the curriculum of a four years' high school course. The matriculation examination shall not have been conducted by any member of the faculty of the medical college.

Advanced Standing.—First. Applicants holding the degree of A.B. or B.S., or an equivalent degree or certificate obtained in an elective course,

from a regularly established and approved college of arts or science, which requires an attendance of four years as an essential to graduation, may be given credit for work actually done in the branches in the medical curriculum of the first year and may be advanced to the second year of a four years' medical course, on condition that they comply with the matriculation requirements of this schedule and that they subsequently complete the work of the first year, and provided that the work already taken shall not be below the standard required by this board.

Second. Graduates of medical colleges complying with the provisions of this schedule may be admitted to any class without examination. Students of such colleges, who possess certificates of attendance and of successful examinations, can enter without examination the term immediately following that previously attended.

Course of Instruction.—First. The course of instruction must consist of a minimum of four terms in four separate years of nine months each, upon at least the following subjects, *viz.*: Anatomy, chemistry, physiology, pathology, bacteriology, materia medica and therapeutics (of the system peculiar to the college), theory and practice of medicine, obstetrics, gynecology, surgery, ophthalmology, otology, laryngology, dermatology, neurology, hygiene and medical jurisprudence.

Second.—The number of hours of instruction given in the four terms must be not less than thirty-six hundred (3,600).

Third. Such colleges must possess adequate laboratory and teaching equipment, and ample hospital facilities for clinical instruction, such as obtain in the majority of medical colleges in the United States, and a proper corps of competent teachers to constitute a faculty, whose salaries are not dependent upon the graduation of students.

Fourth. Clinical and hospital instruction throughout at least two annual terms.

Fifth. A full dissection of at least the lateral half of a human cadaver.

Sixth. Regular attendance during the entire lecture course, allowance being made only for absence occasioned by the sickness of the student, or his immediate family, such absence not to exceed 20 *per centum* of the course.

Graduation.—First. A record for sobriety, honesty and integrity during the college course.

Second. The attendance upon the four full terms of lectures as prescribed (certain persons to whom advanced standing is allowed excepted).

Third. Students, graduates as well as undergraduates, allowed advanced standing must attend all lectures and stand all examinations embraced in the last year of the curriculum.

Examination.—The examination, which may be written, oral or clinical, shall be on the following subjects: Anatomy, physiology, chemistry, symptomatology, toxicology, pathology, surgery and

obstetrics (exclusive of materia medica and therapeutics). The board is permitted to examine in whole or in part, depending upon the nearness of the applicant's qualification to the minimum requirements.

Place and Time.—At Denver on the first Tuesday in January, April, July and October. Applications should be filed at least fifteen days before.

Registration.—Record the license in the office of the recorder of deeds.

Fees.—For the investigation, \$25.00. Should the license not be granted, \$10.00 will be returned.

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. S. D. VanMeter, secretary-treasurer, 1723 Tremont Street, Denver.

TEXT OF LAW.

SECTION 1.—A board is hereby established, to be known by the name and style of the state board of medical examiners. Said board shall be composed of nine practising physicians of integrity and ability, who shall be residents of, and have been duly licensed to practise medicine in this state, and who shall have been graduated from medical schools of high educational requirements and standing, and have been engaged in the active practice of their profession within this state for a period of at least five years. Said board shall perform such duties, and possess and exercise such powers, relative to the protection of the public health and the control and regulation of the practice of medicine in this state as shall be in this act prescribed and conferred upon it.

SECTION 2.—The governor shall appoint nine physicians, who shall possess the qualifications specified in Section 1 of this act, to constitute the members of said board. Said members shall be so classified by the governor that the term of office of three shall expire in two, three in four, and three in six years from the date of appointment. Biennially thereafter the governor shall appoint three members, who shall possess the qualifications as specified in Section 1 of this act, each to serve for the term of six years, and he shall fill vacancies in the membership of said board as soon as practicable.

SECTION 3.—Said board shall, biennially, elect a president, a vice-president, and a secretary-treasurer from their membership, and adopt a seal, which shall be affixed to all licenses issued by them. They shall, from time to time, adopt such rules and regulations, as they may deem necessary for the performance of their duties, and a schedule of minimum educational re-

quirements, which shall be without prejudice, partiality or discrimination as to schools or systems of practice of medicine. When an applicant for a license offers to the board satisfactory proof that he has complied with such educational requirements as are specified in said schedule, the board shall accept such proof as sufficient evidence of the educational qualifications of the applicant to entitle him to a license without examination; provided, however, That at no time shall said schedule for graduates after January 1, 1900, specify the attendance upon less than four full courses of instruction in four separate years in a reputable medical school. They shall keep on file with the secretary of state, for public inspection, a copy of their schedule of educational requirements and rules and regulations.

SECTION 4.—Any person wishing to obtain the right to practise medicine in this state, who has not heretofore been licensed so to do, shall, before it shall be lawful for him to practise medicine in this state, make application to said state board of medical examiners, through the secretary-treasurer thereof, upon such form and in such manner, as shall be adopted and prescribed by the board, and obtain from the board a license so to do. Unless such person shall have obtained a license as aforesaid it shall be unlawful for him to practise medicine in this state; and if he shall practise medicine in this state without first having obtained such a license he shall be deemed to have violated the provisions of this act. All applicants for a license to practise medicine or for a renewal of any such license which has been revoked, shall furnish the board with satisfactory evidence of good moral character.

SECTION 5.—Said board shall have authority to administer oaths, to summon witnesses and to take testimony in all matters relating to their duties. Said board shall issue licenses to practise medicine to all persons who shall furnish satisfactory evidence of attainments and qualifications under the provisions of this act and the rules and regulations of the board. Such licenses shall be signed by the president and attested by the secretary-treasurer of the board under its adopted seal, and they shall be absolute authority to the persons to whom they are issued to practise medicine in this state. It shall be the duty of the secretary-treasurer under the direction of the board, personally or by deputy, to aid the several district attorneys of the state in the enforcement of this act and in the prosecution of all persons charged with violating any of its provisions.

SECTION 6.—There shall be paid to the secretary-treasurer of the state board of medical examiners by each applicant for a license a fee of twenty-five dollars (\$25.00), which shall accompany the application. Two-fifths of the fee shall be returned to the applicant in case the board shall refuse to grant him a license.

SECTION 7.—Examinations of applicants for license to practise medicine shall be made by said state board of medical examiners according to the methods deemed by it to be the most practicable and expeditious to test the

applicant's qualifications. Such applicant will be designated by a number instead of his name, so that his identity will not be disclosed to the members of the board, until after the examination papers are graded. The subjects of written, oral or clinical examinations shall be as follows: Anatomy, physiology, chemistry, symptomatology, toxicology, pathology, surgery and obstetrics (exclusive of materia medica and therapeutics). The credentials of applicants relating to their general reputation, their preliminary education and the courses of study they have pursued; the degrees they have received; the number of years they have been engaged in the lawful practice of medicine; their experience in general hospitals, medical departments of the army, navy and public health and marine hospital service; licenses granted to them by other states and countries; and their experience as teachers of medicine, shall be given due consideration by the board in conducting its examinations. Upon investigation of an applicant's credentials the board shall, when convinced that an applicant is qualified to practice medicine, grant him a license thereon without further examination. Each applicant shall name his system of practice and no person shall use the name of any system unless he holds a certificate from the state association of such system.

SECTION 8.—Every person who shall receive a license from the state board of medical examiners shall have it recorded in the office of the recorder of deeds of the county in which he resides, and shall likewise have it recorded in the counties to which he shall subsequently remove for the purpose of practising medicine. The failure on the part of the holder of a license to have it recorded, before he shall begin the practice of medicine in this state, shall render it null and void.

SECTION 9.—The recorder of deeds of each county in this state shall keep for public inspection in a book provided for that purpose, a complete list and description of the licenses recorded by him. When any such license shall be presented to him for record he shall stamp or write upon the face thereof his signed memorandum of the date when such license was presented for record.

SECTION 10.—The state board of medical examiners may refuse to grant, or may revoke, a license to practise medicine in this state, or may cause a licentiate's name to be removed from the record in the office of any recorder of deeds in the state upon any of the following grounds, to wit: The employment of fraud or deception in applying for a license, or in passing the examination provided for in this act; the practice of medicine under a false or assumed name, or the personation of another practitioner of a like or different name, the conviction of a crime involving moral turpitude; habitual intemperance in the use of ardent spirits, narcotics or stimulants to such an extent as to incapacitate for performance of professional duties; the procuring or aiding or abetting in procuring a criminal abortion; the obtaining of a fee on the representation that a manifestly incurable disease can be permanently cured; causing the publication and circulation of an advertise-

ment of any medicine or means whereby the monthly periods of women can be regulated, or the menses, if suppressed, can be re-established; causing the publication and circulation of an advertisement relative to any disease of the sexual organs. Any person, who is a licentiate, or who is an applicant for a license to practise medicine, against whom any of the foregoing grounds for revoking, or refusing to grant, a license is presented to said board with a view of having the board revoke, or refuse to grant a license, shall be furnished with a copy of the complaint, and shall have a hearing before said board in person or by attorney, and witnesses may be examined by said board respecting the guilt or innocence of said accused. Said board may at any time within two years from the refusal or revocation of a license or a cancellation of registration under this section, by a majority vote, issue a new license, or grant a license, to the person affected, restoring, or conferring all the rights and privileges of, and pertaining to, the practice of medicine as defined and regulated by this act. Any person to whom such rights and privileges have been so restored shall pay to the secretary-treasurer a fee of ten dollars (\$10.00) upon the issuance of a new license.

SECTION 11.—The terms "practice of medicine," "to practise medicine," "practising medicine" and "practise medicine," as used in this act, are each hereby defined to mean holding oneself out to the public as being engaged within this state in the diagnosis and treatment of diseases or injuries of human beings; or the suggestion, recommendation or prescribing of any form of treatment for the intended palliation, relief or cure of any physical or mental ailment of any person, with the intention of receiving therefore, either directly or indirectly, any fee, gift or compensation whatsoever; or the maintenance of an office for the reception, examination and treatment of any person suffering from disease or injury of body or mind; or attaching the title of M.D., surgeon, doctor, or any word or abbreviation to his name, indicative that such person is engaged in the treatment or diagnosis of the diseases or injuries of human beings. If any person shall hold himself out to the public as being engaged within this state in the diagnosis and treatment of diseases or injuries of human beings; or shall suggest, recommend or prescribe any form of treatment for the palliation, relief or cure of any physical or mental ailment of any person with the intention of receiving therefore, either directly or indirectly, for any fee, gift or compensation whatsoever; or shall maintain an office for the reception, examination and treatment of diseased or injured human beings; or shall attach the title of M.D., surgeon, doctor, or any other word or abbreviation to his name indicative that he is engaged in this state in the treatment of diseased or injured human beings; and shall not in any of these cases, theretofore, have received or shall not in any of these cases, then possess, in full force and virtue, a valid license to practise medicine under the laws of this state, he shall be deemed to be practising medicine without complying with the provisions of this act and in violation hereof. Nothing in this act shall be construed to prohibit gratuitous service in case of emergency, nor the practice of the

religious tenets or general beliefs of any church whatsoever, not prescribing medicine or administering drugs, nor shall it apply to commissioned surgeons of the United States army, navy, or public health and marine hospital service, while so engaged, nor to regularly licensed physicians called from other states or territories to attend specific cases in this state, nor the practice of dentistry, nor the practice of osteopathy when not prescribing medicine, or administering drugs.

SECTION 12.—Any person practising medicine in this state, without complying with the provisions of this act, or any person who shall have violated the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not less than fifty dollars (\$50.00), nor more than three hundred dollars (\$300.00), or by imprisonment in the county jail for not less than ten days nor more than thirty days, or both. Any person presenting or attempting to file as his own, the diploma or certificate or credentials of another, or who shall give either false or forged evidence of any kind to the state board of medical examiners, or any member thereof, in connection with an application for a license to practise medicine, or who shall practise medicine under a false or assumed name, or who shall falsely personate another practitioner of a like or different name, shall be deemed guilty of a felony, and upon conviction thereof shall be punished by imprisonment in the state penitentiary for a term of not less than one (1) year, nor more than ten (10) years, at hard labor.

SECTION 13.—All fees received by the state board of medical examiners and all fines collected by any officer of the law under this act, shall be paid to the secretary-treasurer of said board, who shall, at the end of each and every month, deposit the same with the state treasurer, and the said state treasurer shall place said money so received in a special fund to be known as the fund of the state board of medical examiners, and shall pay the same out on warrants drawn by the auditor of the state therefor, upon vouchers issued and signed by the president and secretary-treasurer of said board. Said moneys so received and placed in said fund may be used by the state board of medical examiners in defraying their expenses in carrying out the provisions of this act. At the end of every biennial period, if there shall remain in said fund any balance, said balance shall be transferred to the general revenue fund of the state. The secretary-treasurer of said board shall keep a true and accurate account of all funds received and all vouchers issued by the board; and on the first day of December of each year he shall file with the governor of the state a report of all receipts and disbursements for said board for the preceding fiscal year. Members of said board shall receive a per diem for the time during which they shall be actually engaged in the discharge of their duties; and the secretary-treasurer shall receive a salary; said per diem and salary shall be fixed by the board, and together with other expenses shall be paid out of the fund of the state board of medical examiners.

SECTION 14.—The state board of medical examiners shall meet as a

board of medical examiners in the city of Denver, on the first Tuesday of January, April, July, and October of each year, and at such other times and places as may be found necessary for the performance of their duties.

SECTION 15.—Justices of the peace and all courts of record in the State of Colorado shall have full jurisdiction over and power to enforce the provisions of this act.

Approved April 20, 1905.

CONNECTICUT.

Academic Requirement.—None.

Medical Requirement.—Such as is furnished by a "legally incorporated medical college." Applicant must possess a diploma.

Examination.—Before one of three examining committees. These committees are appointed by the state board of health, from the members of the Connecticut Medical Society, the Connecticut Homeopathic Medical Society, and the Connecticut Eclectic Medical Association. The examinations are conducted by each committee independently of the others, and the results are certified to the state board of health, who issues the certificate of registration. Subjects of examination, anatomy, surgery, materia medica, including therapeutics; practice, including pathology and diagnosis; obstetrics, including gynecology, physiology, medical chemistry and hygiene.

Place and Time.—New Haven, second Tuesday in March, July and November.

Registration.—In the office of the state board of health.

Fees.—For the examination, \$10.00; for the registration, \$2.00.

Reciprocity Regulation.—Either committee may accept the license from the board of examiners of another state, provided, it is satisfied that it has been issued after an examination of as high a grade as that required by Connecticut; that the applicant is a resident of Connecticut and intends, in good faith, to permanently reside therein; and that he has been in actual practice for at least six months in the year immediately preceding the date of his application. The fee for this investigation is \$15.00.

Executive Officer.—Dr. C. A. Lindsley, secretary of the state board of health, New Haven.

DELAWARE.

Academic Requirement.—A competent common school education.

Medical Requirement.—Graduation from a legally incorporated medical college. Graduates after April 18, 1895, must have studied medicine for four years and have taken three separate courses of lectures in different years.

Examination.—Before one of two boards of medical examiners acting in harmony under the supervision of the medical council, so that each board uses essentially the same questions. These questions are for a "thorough examination in anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, therapeutics, practice of medicine and materia medica." Should there be candidates for examination of any other school than the two designated in the act, the council, with some reputable practitioner of that school residing in the state, shall conduct the examination.

Place and Time.—Not designated. Third Tuesday in June and second Tuesday in December.

Registration.—The clerk of the peace in any of the counties issues a license to practise upon presentation of the certificate of the medical council.

Fees.—For the examination, \$10.00; for issuing the license, \$10.00.

Reciprocity Regulation.—The boards of medical examiners may recommend the medical council to issue a certificate to an applicant who has been examined and licensed by the proper board of another state, if it is found that the standard of qualifications and the examination was substantially the same as that of Delaware. The fee for the acceptance of another license is \$50.00.

Remarks.—Licenses can be revoked by the medical council for certain specified causes.

Executive Officer.—Dr. P. W. Tomlinson, secretary of the medical council, Wilmington.

DISTRICT OF COLUMBIA.

Academic Requirement.—None specified in the law.

Medical Requirement.—Graduation from a reputable medical school after four years' study of medicine, if the applicant has graduated subsequent to July 1, 1898.

Examination.—The board of medical supervisors certifies to one of three boards of medical examiners as the accepted candidate for license may select, who shall pass an examination in anatomy, physiology, chemistry, pathology, materia medica and therapeutics, hygiene, histology, practice of medicine, surgery, obstetrics and gynecology, diseases of the eye and ear, medical jurisprudence, and such other branches as said board of medical supervisors may direct.

Place and Time.—In Washington on the second Thursday in January, April, July and October. Additional meetings may be held.

Registration.—The license must be recorded in the office of the clerk of the Supreme Court of the District of Columbia, within three months of its issuing.

Fees.—For examination, \$10.00 ; for recording license, 50 cents.

Reciprocity Regulation.—The reciprocity provision in the practice act of the District of Columbia is an amendment to the act 1896, adopted January 19, 1905.

The amendment reads :

TEXT OF THE AMENDMENT TO THE ACT OF 1896.

An act to amend "An act to regulate the practice of medicine and surgery, to license physicians and surgeons, and to punish persons violating the provisions thereof in the District of Columbia," approved June third, eighteen hundred and ninety-six.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section eight of "An act to regulate the practice of medicine and surgery, to license physicians and surgeons, and to punish persons violating the provisions thereof in the District of Columbia," approved June 3, 1896, be amended by striking out the following words : " Provided, That a license shall be issued upon application, free of cost and without examination, to each physician who is registered at the health office of the District of Columbia at the time of the passage of this

act, and to physicians who may change their residence to the District of Columbia from any state or territory where medical laws and medical examining boards exist, the presentation of a certificate or license from a medical examining board, if found upon due inquiry to be true and genuine, being sufficient evidence of right to registration and certification under the provisions of this act; Provided, That the medical laws and examining boards of such states and territories grant equal rights and recognition to the licentiates of the board herein created," and by inserting in lieu thereof, after section eight, the following:

SEC. 8.—That the board of medical supervisors of the District of Columbia be, and is hereby, authorized and directed to license to practise medicine and surgery in said district, without examination, any applicant for such license who has been engaged in the practice of medicine and surgery in any other jurisdiction, whether a state, territory, or insular possession of the United States, or a foreign country, subject to the following conditions:

a. No applicant shall be licensed who is not of good moral character and free from mental defects and drug habits liable to interfere with the proper practice of medicine and surgery;

b. Nor who, at the time of making application, and for not less than two years prior to the date thereof, has not been lawfully authorized to practise medicine and surgery, and actually engaged in such practice, in the jurisdiction wherein he resides;

c. Nor unless the applicant acquired the right to practise medicine and surgery in such jurisdiction under conditions equivalent to those with which he would have had to comply in order then to have practised medicine and surgery in the District of Columbia;

d. Nor unless the jurisdiction, by virtue of whose license the applicant seeks exemption from examination in the District of Columbia, grants to licentiates of the board of medical supervisors of said district privileges equivalent to those which the applicant seeks;

e. Nor until the applicant has paid to the board of medical supervisors aforesaid such fee as may be fixed and required by the regulations of said board, but not more than the fee charged under similar circumstances by the jurisdiction by virtue of whose license the applicant seeks exemption from examination.

And said board of medical supervisors is further authorized and directed to issue in favor of its licentiates such certificates, if any, as may be necessary to enable such licentiates, without examination, to obtain licenses to practise medicine and surgery in other jurisdictions, and to collect for the issue of such certificates such fees as may be necessary to defray the cost of issuing the same and to use such fees for that purpose.

And said board of medical supervisors is further authorized to determine all matters of fact required to be determined in the execution of the provisions of this section.

Approved January 19, 1905.

Remarks.—The board of medical supervisors may revoke a license for certain causes, but not until opportunity is given for defense.

Executive Officer.—Dr. William C. Woodward, secretary of the board of medical supervisors.

FLORIDA.

Academic Requirement.—None.

Medical Requirement.—Graduation from a medical college recognized by the board.

Examination.—Before one of three medical boards of examiners, one of which is composed of homeopathic physicians, and another of eclectics.

Place and Time.—Regularly semi-annually at some central and convenient point, due notice of which must be published in a newspaper of general circulation.

Registration.—In the office of the clerk of the circuit court of the county of residence.

Fee.—For the examination, \$15.00.

Remarks.—A temporary license may be issued, which also must be recorded.

Executive Officers.—Dr. J. D. Fernandez, secretary, 28 W. Ashley St., Jacksonville; Dr. C. W. Johnson, secretary homeopathic board, Jacksonville; Dr. H. J. Hampton, secretary eclectic board, Tampa.

LAW EFFECTIVE MAY 31, 1889, SECTIONS 801, 802, 805 AND 810 AMENDED BY THE LEGISLATURE OF 1905 AND APPROVED BY THE GOVERNOR, MAY 15, 1905.¹

SEC. 801. *Appointment of Medical Examiners.*—The governor shall appoint a state board of medical examiners, and also a board of homeopathic medical examiners.

¹ The board of eclectic medical examiners is provided for by a special act passed in 1899.

SEC. 802. *Qualification of Examiners.*—The state board of medical examiners shall be composed of seven regular practising physicians who have been duly licensed to practise in this state; no two members shall be residents of the same judicial district. Said board of homeopathic medical examiners shall be composed of three practising homeopathic physicians of known ability, who shall be graduates in good standing of some medical college recognized by the American Institute of Homeopathy.

SEC. 803. *Term of Office.*—The appointment of each member of each of said boards shall continue for four years from the date of such appointment. Whenever a vacancy shall occur on any of said boards, the same shall be filled by the governor for the unexpired term.

SEC. 804. *To Elect a President and Secretary and to Make Rules.*—Each board shall elect one of their number president, and shall adopt all necessary rules for the guidance and control of their meetings.

SEC. 805. *Regular Meetings.*—Each board shall meet regularly semi-annually at some central and convenient point in the state, to conduct examinations and grant licenses, as herein provided, and they shall give at least one month's public notice of their meeting by publication once a week in a newspaper of general circulation throughout the state.

SEC. 806. *Examinations.*—It shall be the duty of said board of examiners to examine thoroughly every applicant for certificate of qualification to practise medicine in any of its branches or departments, upon the production of his medical diploma from a recognized college upon the following-named subjects: Anatomy, physiology, surgery, gynecology, therapeutics, obstetrics and chemistry, but no preference shall be given to any school of medicine; provided that it shall be the duty of the board of homeopathic medical examiners to examine thoroughly every applicant for certificate of qualification to practise medicine in any of its branches or departments, upon the production of his diploma from a college recognized by the American Institute of Homeopathy upon the following-named subjects: anatomy, physiology, surgery, gynecology, materia medica, therapeutics, obstetrics and chemistry; but no preference shall be given to any school of medicine.

SEC. 807.—When the board shall be satisfied of the qualifications of an applicant, they shall grant him a certificate to that effect, which certificate shall entitle the person to whom granted, to practise medicine in any county when the same shall have been recorded as required by Section 809.

SEC. 808. *Two May Grant Certificates. Temporary Certificates.*—Any two members of said board may grant a certificate of qualification to an applicant; and any member of said board shall have authority to grant a temporary certificate to an applicant upon examination until the next regular

meeting of the board at which time the temporary certificate shall cease to be of force.

SEC. 809. *Record of Certificate.*—The certificate provided for in the two preceding sections shall, before the person to whom it is granted shall be entitled to practise by virtue thereof, be recorded in the office of the clerk of the circuit court in the county in which such practitioner may reside or sojourn, in a well-bound book to be kept by the clerk for that purpose, and when so recorded the clerk shall certify thereon under his official seal the fact and date of such record, and shall return such certificate to the person to whom the same was granted and shall be entitled for such service to collect from the holder of such certificate the legal fee for recording.

SEC. 810. *Examination Fee.*—The board shall be entitled to demand and receive from each applicant examined the sum of fifteen dollars, whether a certificate be granted to such applicant or not.

SEC. 811. *Certificates to Former Practitioners.*—All practitioners who have been engaged in the practice of medicine, in any of its departments, in this state, prior to May 31, 1889, shall, upon the production of a diploma from a medical college recognized by the American Medical Association, be granted by the board of examiners, a certificate of qualification, without further examination and without charge.

SEC. 812. *Provisions Not to Apply to Certain Persons.*—The provisions of this chapter shall not apply to persons who have heretofore received certificates of qualification and have recorded the same as provided by the laws of this state heretofore existing, nor to females who follow the practice of midwifery strictly as such. No person, except those described in this section, shall be permitted to practise medicine in any of its branches or departments without first having obtained and recorded a certificate of qualification from some authorized board of medical examiners as hereinbefore provided.

GEORGIA.

Academic Requirement.—None.

Medical Requirement.—Graduation from a medical school, after at least three full courses of six months' each for those who have graduated after April 1, 1895.

Examinations.—Before one of three medical examining boards, the subjects for examination not being specified in the act.

Place and Time.—One meeting shall be held in connection with the graduation day of each medical college in the state as mutually arranged by the board and the faculty thereof, and another meeting shall be held on the second Tuesday of October.

Registration.—The license must be registered in the office of the clerk of the Superior Court.

Fees.—For the examination, \$10.00; for registration, 50 cents.

Reciprocity Regulation.—The following amendment to the act has been adopted by the legislature since the last report.

SECTION 1.—Be it enacted by the General Assembly of Georgia, That from and after the passage of this act the boards of medical examiners of Georgia be and it is hereby authorized upon a receipt of a license fee of ten dollars without examination, to endorse licenses issued by other state boards having an equal standard and requirements with the Georgia boards; *provided*, said other state boards accord to the licenses of the Georgia state boards the same courtesy, and said other board licenses, when endorsed shall entitle the holder to register in this state, and to all the rights and privileges thereby granted. *Provided*, further, that all physicians in regular standing who graduated before the act, creating the state examining boards, be granted license without examination on payment of fees who desire to locate outside of this state.

Remarks.—Although the three boards are independent of each other, no one failing before any one board can come up for an examination before either of the other boards.

Executive Officers.—Secretaries, F. D. Paterson, Cuthbert; R. E. Hinman, 153 Whitehall Street, Atlanta (homeopathic board); Dr. W. V. Robertson, 77½ Peachtree Street, Atlanta (eclectic board).

HAWAII.

Academic Requirement.—Not specified.

Medical Requirement.—Not specified.

Examination.—An examination before a board of three medical examiners, who shall submit a written report setting forth that the applicant has been duly examined and found to be possessed of the necessary qualifications. This report is submitted to the board of health, which recommends the issuance of a license.

Fees.—For the examination, \$10.00.

Remarks.—The ct provides for revoking a license for cause.

Executive Officer.—Dr. C. B. Wood, Honolulu.

IDAHO.

Academic Requirement.—None specified.

Medical Requirement.—Graduation from a medical school in good standing with the state board of examiners.

Examination.—In the applied branches of the theory and practice of medicine and surgery, and to include anatomy, physiology, pathology, diagnosis, hygiene, chemistry, histology and toxicology.

Place and Time.—At Boise City on the first Tuesday of April and October in each year.

Registration.—In the office of the county recorder within thirty days after its issuing.

Fees.—For the examination, \$25.

Remarks.—The board has the power to revoke a license for cause.

Executive Officer.—Dr. J. C. Conant, Jr., Genessee.

For text of the act, see Bulletin of the American Academy of Medicine, Vol. 4, p. 703.

ILLINOIS.

Academic Requirement.—Commencing with the session of 1904-5 every medical college considered in "good standing" with the Illinois State Board of Health, will be required to exact of each candidate for admission documentary evidence of an accredited high school education or its equivalent (including a knowledge of Latin).

Medical Requirement.—Beginning with the session of 1904-5, attendance on four courses of lectures of at least seven months' each, all applicants must be graduates of medical schools in good standing before the board.

Examination.—Before the state board of health in anatomy (including histology), chemistry, gynecology, hygiene, materia

medica and therapeutics, medical jurisprudence, obstetrics, pathology and bacteriology, physiology, practice of medicine (including dermatology, laryngology, rhinology, neurology, ophthalmology and otology) and surgery.

Registration.—The certificate of the state board of health is to be recorded in the office of the county clerk.

Fees.—For the examination, \$10.00; for the certificate, \$5.00.

Reciprocity Regulation.—Physicians licensed by other state boards, having standards not lower than those required by Illinois, will be granted certificates without examination, if the certificates of the Illinois board under the provisions of the act now in force receive like consideration.

Remarks.—Licenses may be revoked by the state board of health for cause.

Executive Officer.—Dr. J. A. Egan, State House, Springfield.

For text of the act of 1899, see Bulletin of the American Academy of Medicine, Vol. 4, p. 711.

INDIANA.

Academic Requirement.—That of the entrance examinations of the medical schools recognized by the board.

Medical Requirement.—The applicant must have graduated from a medical school maintaining a standard acceptable to the board (essentially such a course as required by the Association of American Medical Colleges).

Examination.—Before the state board of medical registration and examination in anatomy, physiology, obstetrics, gynecology, materia medica and therapeutics, theory and practice of medicine, chemistry, surgery, pathology, bacteriology, hygiene, histology, rhinology, medical jurisprudence, ophthalmology, otology, laryngology and dermatology.

Place and Time.—At Indianapolis on the second Tuesday of January and July.

Registration.—Present the certificate from the state board to the county clerk, who will issue and record license to practise.

Fees.—For the examination, \$25 ; for the license and recording, fifty cents.

Reciprocity.—The board has power to arrange for an exchange of licenses with the licensing bodies of other states.

Remarks.—The board can revoke licenses for cause, and it is charged with the duty of enforcing the act. The last legislature recognized osteopathy by adopting an additional section to this act.

A bill for an act in regard to the state board of medical registration and examination and concerning eligibility before the board, adopted by Legislature, 1904-05.

SECTION 1.—Be it enacted by the General Assembly of the State of Indiana that within sixty days after this law goes into effect it shall be the duty of the governor to appoint an additional member of the state board of medical registration and examination which board shall hereafter consist of six members, each of which shall serve for a term of office of four years and until his successor shall have been appointed and qualified. The additional member appointed shall be a reputable practitioner and a graduate of a reputable school or college of the system by which he practises, and shall belong to some school or system of practice other than those which are now represented upon said board and his successors shall in the future be of some different school from that of the remaining members.

Provided, that any osteopath now practising and resident of the State of Indiana, and holding a diploma from a reputable college of osteopathy as determined by the state board of medical registration and examination, shall be eligible to an examination on proper application to said board, and shall he pass this examination, that he shall be granted a certificate for a license to practise osteopathy in the State of Indiana.

Executive Officer.—Dr. W. T. Gott, State House, Indianapolis.

INDIAN TERRITORY.

Academic Requirement.—For those who wish to submit a diploma as evidence of being duly qualified, if the diploma has been issued after July 1, 1904, a preliminary examination for admission to the medical school in all the common branches and the higher mathematics. There are no requirements for any other.

Medical Requirement.—For graduates after July 1, 1904, four courses of lectures of at least six months' each in a reputable college.

Examination.—Each district of the territory is to have a board

of three "examiners," who "shall faithfully and impartially examine all such persons as shall appear before them for that purpose, touching their qualifications to practise medicine and surgery, or either, and all such persons as shall satisfy such board of examiners, or a majority of them, that he or she is of good moral character, duly qualified in knowledge and capacity to practise medicine and surgery, or either, shall receive from such board a certificate, etc." The boards are privileged to accept diplomas in medicine as evidence, but all dated after July 1, 1904, must be from colleges of a specified standing.

Place and Time.—At the court house of each district on the first Monday in January, April, July and October.

Registration.—The certificate must be registered by the district clerk in a book provided for that purpose.

Fees.—For approving a diploma, \$1.00; the act does not specify the fee for an examination by a board.

Executive Officers.—Central District: Dr. W. B. Caldwell, Hugo; Northern District: Dr. B. F. Fortner, Vinita; Southern District: Dr. E. E. Chivers, Mannsville; Western District: Dr. M. F. Williams, Muscogee.

For text of the act, see Bulletin of the American Academy of Medicine, Vol. 6, p. 714.

IOWA.

Academic Requirement.—That required as an entrance examination to the medical schools recognized by the board.

Medical Requirement.—For those who graduate after January 1, 1899, four courses of lectures of not less than twenty-six weeks each.

Examination.—Before the state board of medical examiners in anatomy, chemistry, materia medica, obstetrics, pathology, physiology, practice and surgery.

Place and Time.—At the State House, Des Moines, on the first Thursday of February, May, August and November; and at the various medical colleges in the state at the time of their commencement.

Registration.—The certificate of the state board must be recorded in the office of the county recorder.

Fees.—For the examination, \$10.00; for recording, fifty cents.

Reciprocity Regulation.—The board has the power to accept licenses of another state in lieu of an examination if the courtesy is reciprocated by that state.

Executive Officer.—Dr. J. F. Kennedy, Des Moines.

KANSAS.

Those having the following qualifications are privileged to apply for registration: 1. Attending a legally qualified medical school two years and having had ten years' practice; 2. Attending a legally qualified medical school three years and having had five years' practice; 3. Attending a legally qualified medical school four years.

Examination.—Before the state board of medical examiners in anatomy and histology, chemistry, obstetrics and gynecology, materia medica and therapeutics, pathology, bacteriology, theory and practice of medicine, physiology and surgery.

Place and Time.—At State House, Topeka, on the second Tuesday of February, June and October.

Registration.—The license of the board must be recorded in the office of the clerk of the county.

Fees.—For examination, \$15.00; for recording, \$1.00.

Reciprocity Regulation.—The law permits the board to accept the license of another state.

Executive Officer.—Dr. G. F. Johnson, secretary, Lakin.

KENTUCKY.

Medical Requirement.—A diploma from a reputable and legally chartered medical college.

Examination.—Before the state board of health in the branches of medicine as taught in reputable medical colleges.

Place and Time.—At least semi-annually at Frankfort, Louisville, Lexington, or other centrally located places.

Registration.—At the office of the county clerk.

Fees.—For the examination, \$10.00; for registration, fifty cents.

Remarks.—Students who have matriculated in Kentucky medical colleges before February 1, 1904, and who shall have graduated prior to September 1, 1907, shall be exempted from the examination, if application for a license is made before January 1, 1908. The board has authority to revoke licenses for cause. An "itinerant doctor" cannot register in Kentucky.

Executive Officer.—Dr. J. N. McCormack, secretary, Bowling Green.

ACT OF 1904. SEC. 1.—A board to be known as the state board of health is hereby established. It shall consist of eight members, all of whom shall be legally registered practitioners under this act, seven of whom shall be appointed by the governor by and with the advice and consent of the senate, and the eighth member, who shall be the secretary and the executive officer, shall be elected by the board, and by virtue of his office of secretary shall be a member of the board. One member of the board shall be a homeopathic, one an eclectic and one an osteopathic physician, and the other appointed members shall be regular, or allopathic physicians, all to be appointed by the governor from lists of three names for each vacancy, furnished respectively by the state society or association of such schools or systems of practice as are entitled to the member, and the successors of such members shall be appointed in the same manner. If the board shall elect one of its members secretary, as it may do, the governor shall appoint another member to complete the full number of the board. The president and secretary shall have authority to administer oaths for the purposes of this act, and the members of the board shall, before entering upon the discharge of their duties, take the oath prescribed by the constitution for state officers.

ACT OF 1893. SEC. 2.—It shall be the duty of the county clerk of each county to purchase a book of suitable size, to be known as the "Medical Register" of the county, and to set apart one full page for the registration of each physician; and when any physician shall die or remove from the county, he shall make a note of the same at the bottom of the page; and said clerk shall, on the first day of January in each year, transmit to the office of said board of health a duly certified list of the physicians of said county registered under this law, together with such other information as hereinafter required, and perform such other duties as are required by this law; and such clerk shall receive the sum of fifty cents from physician so registered, which shall be his full compensation for all the duties required under this law.

ACT OF 1893. SEC. 3.—It shall be unlawful for any person to practise medicine, in any of its branches, within the limits of this state, who has not

exhibited and registered in the county clerk's office of the county in which he resides his authority for so practising medicine as herein prescribed, together with his age, address, place of birth, and the school or system of medicine to which he proposes to belong ; and the person so registered shall subscribe and verify by oath, before such clerk, an affidavit containing such facts, which, if wilfully false, shall subject the affiant to conviction and punishment for perjury.

ACT OF 1904. SEC. 4.—Authority to practise medicine under this act shall be a certificate from the state board of health, registered in the county in which the holder resides ; and said board shall issue a certificate to any reputable physician who desires to practise medicine in this state, who has passed a satisfactory examination before it, in the branches of medicine as taught in reputable medical colleges ; and said board shall, upon application, admit to examination any person of good moral character, who may possess any of the following qualifications :

1st. A diploma from a reputable medical college, legally chartered under the laws of this state.

2nd. A diploma from a reputable and legally chartered medical college of some other state in this Union.

3rd. Satisfactory evidence from the person claiming the same that such person was reputably and honorably engaged in the practice of medicine in this state prior to February 23, 1884.

Applicants may present their credentials by mail or proxy and shall receive due notice of the place and date of examination. Certificates shall be signed by the president and secretary, and attested by the seal of the board, and the fee for each examination, including the certificate, shall not exceed the sum of ten dollars. The members of the board shall be entitled to receive ten dollars per day and their necessary traveling expenses for each day devoted to such examinations, to be paid from the fees provided therein, and the board shall have authority to provide for such assistants as it may deem necessary and pay for the same from the fund arising from such fees.

ACT OF 1904. SEC. 5.—Examinations shall be held at least semi-annually at Frankfort, Louisville, Lexington, or other centrally located places, and on such dates as the board may deem will best suit the convenience of applicants. The questions for all examinations in the branches common to all schools or systems of practice shall be prepared by a committee of the board, to consist of five members, one of which shall be a homeopath, one an eclectic, and one an osteopath, and said committee shall conduct all examinations and grade the same, and when any applicant has made the average prescribed by law, and is so graded, the board of health shall admit such applicant to the practice of his or her profession in this state. All examinations shall be conducted in writing, and in such manner that the result shall be entirely fair and impartial, the applicants being known by numbers so that no member of the board shall be able to identify the papers

of any applicant until they have been graded and the case passed upon; and all questions and answers, with the grade attached, shall be preserved for one year. All applicants examined at any one time shall have the same questions asked them in anatomy, physiology, obstetrics, and the other branches common to all systems of practice, and shall be required to make an average grade of 70, with a minimum of 60 in any one branch; but all examinations, involving methods or principles of treatment shall be made and graded by that member of the board who represents, or most nearly represents, the school or system of practice to which the applicant belongs, or the board may, in its discretion, omit the examination in such branches. No member of the board shall be a stockholder or member of the faculty or board of trustees of any medical college.

ACT OF 1904. SEC. 6.—Any person engaged in the practice of osteopathy in this state prior to February 1, 1904, who holds a diploma from a reputable osteopathic college, having a course of not less than four terms of five months each, legally chartered under the laws of any state in this Union as determined by the osteopathic member of the board, and who make application to the state board of health within ninety days after the passage of this act, accompanied by the fee hereinbefore provided, shall receive a certificate from the board without an examination, which, when registered in the office of the county clerk of the county of his residence, as required of other certificates issued by the board, shall authorize the holder thereof to practise osteopathy in this commonwealth, but it shall not permit him to administer drugs, nor to perform surgical operations with the knife. The words, "practice of medicine," in this act, shall be held to include the practice of osteopathy. But no person shall be permitted to practise osteopathy in this commonwealth without an osteopathic diploma and certificate as provided in this section.

ACT OF 1904. SEC. 7.—Any other person applying to treat the sick or injured, or in any way discharge the duties usually performed by physicians, whether by medical, surgical or mechanical means, shall apply to the state board of health, who shall examine them as to their competency in such manner as they may deem fair and best, but such examination shall always include anatomy, physiology and pathology, and the term "practice of medicine," as used in this act, shall be construed to be the treatment of any human ailment or infirmity by any method; but this shall not include trained or other nurses, or persons selling proprietary or patent medicines, when not traveling as a troupe or troupes composed of two or more persons.

ACT OF 1904. SEC. 8.—That any itinerant medical company of two or more persons traveling as a troupe or company as vendors of any drug, nostrum or instrument of any kind, intended for the treatment of any disease or injury, or who shall, by any writing or printing, profess to the public to treat disease or deformity by the use of any drug, nostrum, or instrument, shall pay to the board a license of \$100 per month, which shall be at once covered into the state treasury. The board shall issue a license to reputable

and worthy applicants under this section upon payment of the fee each month, but may for sufficient cause refuse such license. Any such itinerant vendor traveling as a company or troupe, with two or more persons as members or in its employ who shall treat or profess to treat or cure disease or injuries by the use of any drug, nostrum, or instrument without license to do so, or shall sell the same for such purpose, in violation of this section, shall, upon conviction, each and every person so engaged, be fined fifty dollars for the first offense, and upon each subsequent conviction shall be fined one hundred dollars.

ACT OF 1893. SEC. 9.—Nothing in this law shall be construed as to authorize any itinerant doctor to register or to practise medicine in any county in this state.

ACT OF 1893. SEC. 10.—Nothing in this law shall be so construed as to discriminate against any peculiar school or system of medicine, or to prohibit women from practising midwifery, or to prohibit gratuitous services in case of emergency; nor shall this law apply to commissioned surgeons of the U. S. army, navy or marine hospital service, or to legally qualified physicians of another state, called to see a particular case or family, but who does not open an office or appoint any place in this state where he or she may meet patients or receive calls.

ACT OF 1904. SEC. 11.—The state board of health may refuse to issue the certificate provided for in this act for any of the following causes:

1st. The presentation to the board of any license, certificate or diploma which was illegally or fraudulently obtained, or the practice of fraud or deception in passing the examination.

2nd. The commissions of a criminal abortion, or conviction of a felony involving moral turpitude.

3rd. Chronic or persistent inebriety, or addiction to a drug habit, to an extent which disqualifies the applicant to practise with safety to the people.

4th. Or other grossly unprofessional or dishonorable conduct of a character likely to deceive or defraud the public.

The board may suspend or revoke a certificate for any of the causes for which it may refuse to grant a license under the provisions of this act. In all proceedings for suspension or revocation under this act the holder of the certificate shall be furnished with a copy of the complaint, and shall be given at least thirty days thereafter to prepare for a hearing; and he shall be heard in person or by counsel, or both, as he may elect, and in such hearing and in all matters arising in the course of their duties, the president and secretary shall have authority to administer oaths; and in such hearing the board may take oral or written proof for and against the complaint, as it may deem will best present the facts. In all cases of refusal, suspension, or revocation, the applicant or holder may appeal to the governor who may affirm or overrule the decision of the board. Upon the suspension or revocation of any certificate, it shall be the duty of the board to give official notice of such action, under seal, to the county clerk of the county in which the holder is

registered, and such name shall be marked as suspended for the period indicated or stricken from the register, in accordance with such notice, and if such holder shall continue to practise he shall thereupon be subject to the penalties provided in the law to which this is an amendment.

ACT OF 1904. SEC. 12.—This act shall take effect and be in force in accordance with the provisions of the constitution, but it is expressly provided that all certificates issued by the board under the provisions of the law to which this is an amendment, are hereby confirmed and continued in force, and all students who are matriculated in any medical or osteopathic college, in this commonwealth on or before February 1, 1904, and shall have graduated prior to September 1, 1907, and make application to the board prior to January 1, 1908, shall receive certificates without examination. All acts and parts of acts in conflict with the provisions of this act are hereby repealed.

ACT OF 1893. SEC. 13.—It shall be the duty of the state and local boards of health to bring to the attention of the courts any violations of the provisions of this law within their respective jurisdictions.

ACT OF 1898. SEC. 14.—Any person living in this state, or any person coming into this state, who shall practise medicine, or attempt to practise medicine in any of its branches, or who shall treat or attempt to treat any sick or afflicted person by any system or method whatsoever, for reward or compensation, without first complying with the provisions of this law, shall, upon conviction thereof, be fined fifty dollars, and upon each and every subsequent conviction shall be fined one hundred dollars and imprisoned thirty days, or either or both, in the discretion of the court or jury trying the case; and in no case where any provisions of this law have been violated shall the person so violating be entitled to receive any compensation for the services rendered. To open an office for such purpose, or to announce to the public in any way a readiness to treat the sick or afflicted shall be deemed to engage in the practice of medicine within the meaning of this act.

LOUISIANA.

Academic Requirement.—"At least a fair primary education."

Medical Requirement.—Graduation from a college recognized by the board.

Examination.—Before one of two boards of examiners in anatomy, physiology, chemistry, principles of medicine, obstetrics, physical diagnosis, surgery, materia medica and hygiene.

Place and Time.—At New Orleans at least twice a year.

Registration.—The certificates of the board shall be recorded in the office of the clerk of the district court of the parish of residence, and the fact of the recording must be endorsed on the orig-

inal certificate which is returned to the secretary of the board of examiners, where it is filed and the owner is placed on the registered list of physicians of the state.

Fees.—For the examination, \$10.00; should the applicant fail, \$5.00 of this is returned; for the certificate, \$1.00; for recording, \$1.00; certified copies of the original certificate, fifty cents.

Remarks.—The list of registered physicians is published in a newspaper of the state; the board may revoke license for a cause, and may procure a writ of injunction forbidding and enjoining any person from further practising medicine, who is not legally registered. This injunction cannot be released on bond, and the same judgment in which the injunction is made absolute may be a penalty not to exceed \$100, attorney's fees not more than \$50, and the costs of the suit. The trial is by the judge without an intervention of a jury.

Executive Officers.—Dr. F. A. Larue, secretary, 624 Gravier Street, New Orleans, for the board representing the Louisiana State Medical Society, and Dr. Gayle Aiken, secretary, 1102 St. Charles Ave., New Orleans, for the board representing the Hahnemann State Medical Society.

MAINE.

Academic Requirement.—The minimum grade of preliminary education before admission to study of medicine is a good English education, evidenced by a knowledge of English orthography and composition, mathematics including algebra and plane geometry, geography, history, natural philosophy or physics, and chemistry, with some laboratory work; and also the ability to read at sight common Latin prose.

Medical Requirement.—Graduation from a medical school after four courses of lectures. Three courses accepted from those who graduated previous to 1902, and from such the board will permit five years' practice to count for a course of lectures.

Examination.—Before a state board of medical examiners in anatomy (including histology), physiology (with some reference to chemistry), pathology (including bacteriology), materia medica, therapeutics, practice of medicine, surgery (with questions

on diseases of the eye and ear), and obstetrics (including gynecology).

Place and Time.—In March, July and November at such place and time as the board may direct.

Registration.—None is required, the certificate of the board must be exhibited in the office.

Fees.—For the examination, \$10.00; for the certificate, \$2.00; accepting license of another state, \$25.00.

Reciprocity.—Licenses from state boards having essentially the same standard, may be accepted by the board of examiners if the other state reciprocates the courtesy.

Executive Officer.—Dr. W. J. Maybury, secretary, Saco.

MARYLAND.

Academic Requirement.—A "competent common-school education."

Medical Requirement.—Graduation from a medical school requiring a four years' standard, as defined by the American Medical College Association, or the Intercollegiate Committee of the American Institute of Homeopathy. Exception is made to this for those who have been legally practising outside of Maryland for three years prior to April 11, 1902, and for certain students in Maryland colleges at the time of the adoption of the act. A license in a foreign country conferring full rights to practise will be accepted without other evidence.

Examination.—Before one of two boards of medical examiners, which act independently of each other. The schedule includes papers on anatomy, physiology, medical chemistry, surgery, practice of medicine, materia medica, therapeutics, obstetrics and pathology.

Place and Time.—"For the purpose of examining applicants for licenses, each of the said boards of medical examiners shall hold one or more stated or special meetings in each year, due notice of which shall be made public, at such time and places as may be determined by the members thereof, respectively."

Registration.—The license is to be filed in the office of the clerk

of the circuit court, who shall register the licensee in a book kept for that purpose.

Fees.—For the examination, \$15.00 ; for the registration, fifty cents.

Reciprocity Regulations.—The law provides for the mutual acceptance of licenses with states having as high a standard, and the registration of practisers from the District of Columbia without a fee.

Remarks.—The boards have power to revoke licenses for cause. Students having satisfactorily passed two years of their medical course, may be examined in anatomy, physiology, medical chemistry and materia medica, to be considered as part of the final examination when the course is completed. And fourth-year men, properly certified, may take the examination before receiving the diploma, but the license is withheld until after graduation.

Executive Officers.—Drs. Joseph S. Garrison, secretary, Easton, representing the Maryland State Homeopathic Medical Society ; Dr. J. McP. Scott, secretary, Hagerstown, representing the Medical and Chirurgical Faculty of Maryland.

MASSACHUSETTS.

Any one desiring to do so, may present himself for examination for licensure in Massachusetts, provided he be 21 years of age and of a good moral character.

Examinations.—Before a board of medical examiners of a scientific and practical character, to include the subjects of anatomy, surgery, physiology, pathology, obstetrics, gynecology, practice of medicine and hygiene, and shall be sufficiently thorough to test the applicant's fitness to practise medicine.

Place and Time.—In Boston on the second Tuesday in March, May, July, September and November.

Registration.—The board of examiners register the names of those to whom certificates are given.

Fees.—For the examination, \$20.00.

Remarks.—The board has power to revoke licensee for cause.

All applications for examination should be made at least five days before the day set for the examination.

Executive Officer.—Dr. E. B. Harvey, secretary, State House, Boston.

MICHIGAN.

Academic Requirement.—Such as is evidenced by graduation from a recognized and reputable high school, academy, college or university having a classical course ; or passing an examination before the state board of examiners. The entrance examinations of Michigan medical schools, approved by the board, will be accepted by the board.

Medical Requirement.—For graduates after September, 1903, four courses of at least seven months in separate years, and graduation from a recognized medical school. Provision is made for those graduating earlier than the date when the present law went into effect, for less rigorous conditions both in medical and preliminary studies, preserving the educational qualification of the earlier laws. Actual medical students in Michigan Colleges on January 1st, 1903, are exempt from the examination clause.

Examination.—Before the state board of registration in medicine, in anatomy, physiology, chemistry, pathology, materia medica and therapeutics, toxicology, histology, practice of medicine, surgery, obstetrics, gynecology, mental and nervous diseases, diseases of the eye, ear, nose and throat, bacteriology, hygiene, public health laws of Michigan and medical jurisprudence.

Registration.—The law does not specify that the certificate of registration issued by the board is to be recorded anywhere other than in the office of the board itself.

Fees.—For examination, \$25.00; to graduates of Michigan schools, \$10.00; for issuing certificate upon acceptance of the license of another state, \$25.00.

Reciprocity Regulation.—The board has full power to accept the licenses of other states or foreign countries in lieu of an examination, if the reciprocal courtesy is shown to Michigan certificates.

Remarks.—Graduates from foreign medical schools are not eligible for examination unless the country in which the schools

are situated permit the graduates of Michigan schools to apply for licensure. The board can refuse or revoke a certificate for cause.

Executive Officer.—Dr. B. D. Harrison, secretary, Saulte Ste. Marie.

For text of act of 1903, see Bulletin of the American Academy of Medicine, Vol. 6, p. 530.

MINNESOTA.

Medical Requirements.—Graduation from a medical school after four full courses, of at least twenty-six weeks, and in separate years; and after September 1, 1901, no student will be accepted who has been admitted to advance standing in the medical school.

Examination.—Before the board of examiners in anatomy, physiology, chemistry, histology, materia medica and therapeutics, preventive medicine, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear, medical jurisprudence, and such other branches as the board shall deem advisable.

Place and Time.—On the first Tuesday of January, April, June and in October in the Capitol Building, St. Paul.

Registration.—Filing the license (or a copy) in the office of the clerk of the district court of the county.

Fees.—For the examination, \$10.00; clerk's fee for filing, seventy-five cents.

Executive Officer.—Dr. C. J. Ringell, secretary, 807 Andrus Building, Minneapolis.

TEXT OF RECENT ACTS REGULATING PRACTICE IN MINNESOTA.

REVISED ACT, 1904. CHAPTER 35.

Section 18. Board of Medical Examiners—Officers—Records.—The state board of medical examiners shall consist of nine qualified resident physicians, appointed by the governor for the term of three years and until his successor qualifies. No member thereof shall serve for more than two successive terms, nor shall any instructor or person financially interested in a medical school be appointed thereto; and it at all times shall include three homeopathic physicians. Vacancies shall be filled by like appointment for the

unexpired term. The board shall elect from among their number a president, a secretary and a treasurer, and shall adopt a seal. It shall hold examinations at the seat of government, on the first Tuesday in January, April, July and October of each year, and at such other times as it shall deem best. The secretary shall keep a record of all its proceedings, including a register of all applicants for license, giving their ages, a description of their education in medicine, and the result of their examination. Said books and register shall be *prima facie* evidence of all the matters therein recorded.

Section 19. Examination and License.—A person not already authorized to practise medicine in the state, and desiring so to do, shall apply to the secretary of the board for examination, and pay a fee of ten dollars for the use of the board, which in no case shall be refunded. At a time appointed, or at the next regular examination, he shall prove that he has completed four entire sessions of twenty-six weeks each at a medical school recognized by the board, no two sessions having been held in one year; or, if such attendance was prior to the year 1899, three such sessions shall suffice. He shall be examined in anatomy, chemistry, histology, obstetrics, pathology, physiology, preventive medicine, the diagnosis and treatment of medical and surgical diseases, and such other branches as the board shall deem advisable. After such examination the board, if seven members thereof consent, shall grant him a license to practise medicine. The examination shall be both scientific and practical, and shall thoroughly test the fitness of the candidate. All answers concerning the treatment peculiar to any school of medicine shall be examined, and their sufficiency passed upon by the members of the board belonging to that school, and their recommendations thereon shall be final. The board may refuse to grant a license to, or may revoke the license of, any person guilty of immoral, dishonorable or unprofessional conduct. But subject to the right of the applicant to appeal to the governor.

Section 20. Physicians from Other States, How Licensed.—The board, either with or without examination, upon receipt of a fee of ten dollars, may grant a license to any physician licensed to practise by the similar board of another state.

Section 21. Record of Licenses—Report to Secretary.—Before engaging in practice, the holder of a license shall file the same for record with the clerk of the district court in the county where he resides. Upon removal to another county, he shall there file his license in like manner before engaging in practice therein. Such clerk shall keep, in the record book of such licenses, an index thereof, showing the date and page of record, and in January of each year shall furnish to the secretary of the board a list of licenses so filed. Upon notice to the clerk of the death or removal of a licensee, or of the revocation of a license, he shall note the same upon the record of such license.

Section 22. Exemptions.—This subdivision shall not apply to commissioned surgeons of the United States army or navy, to physicians from other states in actual consultation here, or to students practising under the direct supervision of a preceptor while they are enrolled in and regularly attending a recognized medical school.

Section 23. Practising without License—Penalty—Practising Defined.—Every person not heretofore authorized by law so to do who shall practise medicine in the state without having obtained the license herein provided for, and every person who shall so practise contrary to any provision of this subdivision, shall be guilty of a misdemeanor, the minimum punishment whereof shall be a fine of \$50 or imprisonment for ten days. Any person shall be regarded as practising within the meaning of this subdivision who shall append the letters M.D. or M.B. to his name, or for a fee prescribe, direct or recommend for the use of any person any drug or medicine or other agency for the treatment or relief of any wound, fracture or bodily injury, infirmity or disease, provided, this section shall not apply to dentists.

TEXT OF THE RECIPROCITY ACT.

Be it enacted by the Legislature of the State of Minnesota :

SECTION 1.—That the state medical examining board, either with or without examination, may grant a license to any physician licensed to practise by a similar board of another state, and who holds a certificate of registration showing that an examination has been made by the proper board of any state on which an average grade of not less than 75 per cent. was awarded the holder thereof, the said applicant and holder of such certificate having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in this state, which said diploma may be accepted in lieu of an examination as evidence of qualifications. In case the scope of said examination was less than that prescribed in this state, the applicant may be required to submit to an examination in such subjects as have not been covered. The fee for such examination shall be \$50.00.

A certificate of registration or license issued by the proper board of any state may be accepted as evidence of qualification for registration in this state : Provided, the holder thereof was at the time of such registration the legal possessor of a diploma issued by a medical college in good standing in this state, and that the date thereof was prior to the legal requirements of the examination test in this state.

SECTION 2.—If by the laws of any state or the rulings or decisions of the appropriate officers or boards thereof, any burden, obligation, requirement, disqualification or disability is put upon physicians registered in this state or holding diplomas from medical colleges in this state which are in good standing therein, affecting the right of said physicians to be registered or admitted to practise in said state, then the same or like burdens, obligations, requirements, disqualifications or disability shall be put upon the registra-

tion in this state of physicians registered in said state or holding diplomas from medical colleges situated therein.

SECTION 3.—All acts and parts of acts inconsistent with this act are hereby repealed.

SECTION 4.—This act shall take effect and be in force from and after its passage.

Approved April 18, 1905.

MISSISSIPPI.

The board of health, acting as a board of examiners, is the sole judge of the fitness of any applicant to practise in Mississippi.

Examinations in the following branches only : anatomy, chemistry, obstetrics, materia medica, physiology, pathology, surgery and hygiene.

Place and Time.—At the Capitol (Jackson) on the first Tuesday of April and October.

Registration.—The license must be filed in the office of the clerk of the circuit court of the county within sixty days of its issuing.

Fees.—For the examination, \$10.25; for filing the license, \$1.00.

Remarks.—The secretary of the board may issue a temporary license, valid until the next meeting of the board.

Executive Officer.—Dr. J. F. Hunter, secretary, Jackson.

MISSOURI.

Academic Requirements.—"All persons appearing for examination shall make application in writing. * * * * They shall furnish satisfactory evidence of their preliminary qualifications."

No prescribed medical course or diploma is required.

Examination.—Before the state board of health in anatomy, chemistry, physiology, pathology, therapeutics, obstetrics, gynecology, surgery, practice of medicine, medical jurisprudence, hygiene and such other branches as the state board may direct.

Registration.—The license must be recorded in the office of the county clerk and the record endorsed upon the license.

Fees.—For the examination, \$15.00; for recording, \$1.00.

Remarks.—The board has power to revoke a license for cause.

Executive Officer.—Dr. W. F. Morrow, secretary, Kansas City.

MONTANA.

Academic Requirement.—That exacted by the medical school as an entrance qualification.

Medical Requirement.—Graduation after attending four courses of at least six months each, if the candidate was graduated after July 1, 1898.

Examination.—Before the state board of medical examiners in anatomy, physiology, materia medica, therapeutics, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear.

Place and Time.—At Helena, on the first Tuesday of April and October.

Registration.—The certificate of the board must be recorded in the office of the county clerk within sixty days of its issuing.

Fees.—For the examination, \$15.00; for recording, the usual fee for such service.

Reciprocity Regulation.—The board is given power to accept licenses issued by another state, in lieu of an examination, if the same consideration be given by that state to Montana licenses.

Remarks.—The board may revoke a license for cause. Should an appeal be taken to the district court, the case is tried before a jury of six physicians.

Executive Officer.—Dr. William C. Riddell, secretary, Helena.

NEBRASKA.

Academic Requirement.—The "common branches, Latin and the higher mathematics."

Medical Requirement.—Four terms of at least six months each, with graduation in a college in good standing with the Board of Health, if the degree is granted after 1898.

Examination.—Before the board of secretaries of the state board of health in those subjects and topics, a knowledge of which is commonly and generally required of candidates for the degree of doctor of medicine, by reputable medical colleges in the United States.

Place and Time.—At such time as the governor may from time to time designate.

Registration.—The certificate of the state board of health, or a copy of it, must be filed with the county clerk.

Fees.—For examination, \$25.00 (\$10.00 to graduates of Nebraska medical schools).

Reciprocity Regulation.—"The state board of health may, at their discretion, admit, without examination, legally qualified medical practitioners who hold certificates to practise medicine in any state with equal requirements to those of the state of Nebraska."

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. George H. Brash, secretary, Beatrice.

For text of the act of 1903, see Bulletin of the American Academy of Medicine, Vol. 6, p. 539.

NEVADA.

Nevada does not require an examination of all applicants.

1. It issues a certificate to those who have a diploma from a reputable and legally chartered medical institution in the United States that is in good standing.

2. It provides for accepting the license of another state, if the holder has been practising medicine in Nevada for five years.

3. It examines holders of diplomas from institutions located without the United States, before issuing the certificate.

Hence, with the exception of those who were residing in Nevada, at the time of the passage of the act, none but graduates of a reputable medical school may practise in Nevada.

Application must be made to the State Board of Medical Examiners, accompanied by the fee—\$25.00. The certificate, when issued, must be recorded in the office of the county recorder. Certificates may be revoked for cause.

Executive Officer.—Dr. S. L. Lee, secretary, Carson City.

For text of the law of 1899, see Bulletin of the American Academy of Medicine, Vol. 4, p. 737.

NEW HAMPSHIRE.

Academic Requirement.—The candidate must have graduated from a registered college, or satisfactorily completed a full course in a registered academy or high school, or had a preliminary education considered and accepted by the regent as full equivalent.

Medical Requirement.—Medicine must be studied for four full school years of at least nine months each, including four satisfactory courses, of at least six months each, in four different calendar years, in a medical college, registered as maintaining at the time a satisfactory standard. The regent has power to accept five or more years practice as an equivalent for the third or fourth years at college. The candidate must also have graduated from a medical school.

Examination.—There are three boards of medical examiners, under the general supervision of the superintendent of public instruction, who is the regent of the boards. The examination includes papers in anatomy, physiology and hygiene, chemistry, surgery, obstetrics, pathology and diagnosis, and therapeutics, including practice and materia medica.

Place and Time.—At Concord, at least once yearly.

Registration.—The license is numbered and registered in the regent's office.

Fees.—For the examination, \$10.00.

Reciprocity Regulation.—"Applicants examined and licensed by other state examining boards registered by the regent as maintaining standards not lower than those provided by this chapter

* * * may, without further examination, on payment of \$5.00 to the regent and on submitting such evidence as may be required, receive an endorsement of their licenses conferring all rights and privileges of a regent license issued after examination.

Executive Officer.—Hon. Henry C. Morrison, regent, Department of Public Instruction, Concord.

NEW JERSEY.

Academic Requirements.—Applicants must submit (a) a certificate or diploma after four years' study either in a normal, manual

training or high school of the first grade (in New Jersey), or in a legally constituted academy, seminary or institute of equal grade. (b) A certificate of examination for admission to the Freshman class of a reputable literary college. (c) A certificate from the State Superintendent of Public Instruction of New Jersey after he has satisfied himself that the applicant's academic education is fully equivalent.

Medical Requirement.—The candidate must have studied medicine not less than four full school years of at least nine months each, including four satisfactory courses of lectures of at least seven months each in four different calendar years, and have received a diploma conferring the degree of doctor of medicine from an institution in the United States in good standing with the board at the time of its issuing ; or a diploma or license conferring the full right to practise all the branches of medicine and surgery in some foreign country.

Examination.—Before the state board of medical examiners, in materia medica and therapeutics, obstetrics and gynecology, practice of medicine (including physical diagnosis and diseases of skin, nose and throat), surgery (including surgical anatomy and diseases of the eye, ear and genito-urinary organs), anatomy, physiology, chemistry, histology, pathology and bacteriology, hygiene and medical jurisprudence.

Place and Time.—At Trenton, on the third Tuesday of June and October.

Registration.—A certified copy of the license must be filed with the county clerk.

Fees.—For the examination, \$25 ; for filing, \$1.00.

Reciprocity Regulations.—Medical licenses issued after examination by other states may be indorsed by New Jersey in lieu of examination ; provided that the standard of requirements (academic medical, moral and examining) of the state issuing the license is substantially the same as that of New Jersey, provided the candidate complies with the conditions required of candidates ex-

aminated in New Jersey. The fee for the endorsement is \$50.00.¹

Remarks.—A legally qualified physician of New Jersey may secure a temporary license for a legally qualified physician in another state, to serve as a *locum tenens* for a period of not less than two weeks nor more than four months for a fee of \$2.00.

The board has the right to revoke a license for cause.

Executive Officer.—Dr. E. L. B. Godfrey, secretary, Camden.

NEW MEXICO.

Academic Requirement.—Graduation from a high school or its equivalent.

Medical Requirement.—Graduation from a medical college granting its diplomas after four full courses in separate years, which is in good standing with the board. The board must in December of each year publish a list of the colleges recognized as in good standing.

Examination.—There is no additional examination by the board.

Place and Time.—At Santa Fe on the first Monday of every June and December.

Registration.—The certificate of the board must be recorded in the office of the clerk of the probate court.

Fees.—For the license, \$25.00.

Remarks.—The board has the power to revoke licenses for cause.

Executive Officer.—Dr. R. D. Black, secretary, Las Vegas.

For text of the act of 1903, see Bulletin of the American Academy of Medicine, Vol. 6, p. 545.

¹ At the annual meeting of the board held at Long Branch, July 5th, the following was adopted :

WHEREAS, The educational and examining standards for the medical license of New Jersey are at least equal in all respects to those of New York, and in some respects higher, and

WHEREAS, The degree of unreasonableness in the matter of interstate endorsement on the part of New York cannot be further ignored, therefore be it

Resolved, That on and after October 16th, the date of the next regular meeting of this board, the endorsement of medical licenses issued by New York will be suspended until further notice.

COLLEGES IN GOOD STANDING JUNE 5, 1905.¹

California.—Cooper Medical College, Hahneman Medical College, University of Southern California, University of California.

Colorado.—University of Denver.

Connecticut.—Yale.

District of Columbia.—George Washington (Columbian) University, Georgetown, National.

Illinois.—Bennett, Chicago Homeopathic, Hahnemann, Illinois Medical College, Northwestern University, University of Chicago, University of Illinois.

Indiana.—Central College of Physicians and Surgeons, University of Indianapolis.²

Kentucky.—Central University, Kentucky School of Medicine, Louisville Medical College, University of Louisville.

Louisiana.—Tulane.

Maryland.—Baltimore Medical College, College of Physicians and Surgeons, Johns Hopkins, University of Maryland.

Massachusetts.—Boston University, Harvard, Tufts.

Michigan.—Detroit College of Medicine, Michigan College of Medicine, University of Michigan (both departments).

Minnesota.—Hamline, University of Minnesota (both departments).

Missouri.—Homeopathic Medical College of Missouri, Marion Sims-Beaumont, University Medical College, Washington University.

New York.—Bellevue, Columbia, Eclectic Medical College, Long Island College Hospital, New York Homeopathic Medical College, New York Medical College and Hospital for Women, Niagara University, Syracuse University, Union, University of Buffalo, University of the City of New York.

Ohio.—Cincinnati College of Medicine and Surgery, Cleveland Homeopathic Medical College, Eclectic Medical Institute, Miami, Ohio Wesleyan, Pulté, Starling, University of Cincinnati, Western Reserve.

Pennsylvania.—Hahnemann, Jefferson, Medico-Chirurgical, University of Pennsylvania, Western University of Pennsylvania, Woman's Medical College.

Virginia.—University of Virginia.

Wisconsin.—Milwaukee Medical College, Wisconsin College of Physicians and Surgeons.

NEW YORK.

Academic Requirement.—The applicant must furnish evidence that he has had a general education equivalent to four years sat-

¹ In the official list sometimes several names are given for one college. Only the last name assumed by the college is given here.

² Recently changed to Purdue University.

isfactory high school work, before beginning the first annual medical course.

Medical Requirement.—A degree in medicine from some registered medical school, with evidence that he has studied medicine not less than four full school years of at least nine months each, including four satisfactory courses of at least six months each, in four different calendar years, in a registered medical school. An amendment permits students graduating from a literary or scientific college, presenting evidence of having pursued certain studies, to enter the second-year medical course, but it has never been put in operation.¹

Examination.—There are three boards of examiners, and the papers are submitted to the board of the applicant's choice. The examination is conducted from questions framed by the State Education Department from suggestions made by the boards, by an examiner of the department. The examinations are held in four convenient places in the state and at least four times annually. The subjects for examination are anatomy, physiology and hygiene, chemistry, surgery, obstetrics, pathology and diagnosis, and therapeutics including practice and materia medica.

Registration.—The license must be recorded in the office of the county clerk.

¹ Text of the amendment—adopted in 1902.

SECTION 1.—Subdivision four of Section 145, of Chapter 621, of the laws of 1893, entitled "An Act in Relation to the Public Health, Constituting Chapter 25 of the General Laws," as amended by Chapter 646 of the laws of 1901, is hereby amended to read as follows:

4. Has studied medicine of not less than four full school years of at least nine months each, including four satisfactory courses, of at least six months each, in four different calendar years in a medical school registered as maintaining at the time a satisfactory standard. New York medical schools and New York medical students shall not be discriminated against by the registration of any medical school out of the state whose minimum graduation standard is less than that fixed by statutes for New York medical schools. The regents may, in their discretion, accept as the equivalent of any part of the third and fourth requirement, evidence of five or more years reputable practice, provided that such substitution be specified in the license, and as the equivalent of the first year of the fourth requirement evidence of graduation from a registered college course provided that such college course shall have included not less than the minimum requirements prescribed by the regents for such admission to advanced standing. The regents may also, in their discretion, admit conditionally to the examination in anatomy, physiology and hygiene, and chemistry applicants nineteen years of age, certified as having studied medicine not less than two full years of at least nine months each, including two satisfactory courses of at least six months each, in two different calendar years, in a medical school registered as maintaining at the time a satisfactory standard, provided that such applicants meet the second and third requirements.

Fees.—For the examination, \$25.00 ; for recording, \$1.00.

Reciprocity Regulations.—The law contemplates the acceptance of licenses issued by other states under certain conditions. But as these conditions have never been complied with to the satisfaction of the education department, it is inoperative.

Executive Officer.—Charles F. Wheelock, chief of the Examination Department, State Education Department, Albany.

NORTH CAROLINA.

Medical Requirement.—Graduation from a medical school requiring of its students not less than three years' attendance. But holders of licenses from other state boards are eligible for examination.

Examination.—Before a state board of medical examiners in surgery, physiology and hygiene, anatomy and histology, obstetrics and gynecology, practice of medicine, materia medica and therapeutics, chemistry and pharmacy.

Place and Time.—At the place of meeting of the state medical society and not more than one week before the time for that meeting. The board may hold one other meeting at its pleasure.

Registration.—The license is to be registered by the clerk of the Superior court.

Fees.—For the examination, \$10.00 ; for registration, 25 cents.

Remarks.—The board has power to revoke a license for cause.

Executive Officer.—Dr. George W. Pressby, secretary, Charlotte.

NORTH DAKOTA.

Medical Requirement.—Graduation from a reputable medical college, having attended four courses of lectures of at least eight months each.

Examination.—Before the state board of medical examiners in anatomy, physiology, chemistry, pathology, therapeutics, diseases of women and children, nervous diseases, diseases of the eye and ear, medical jurisprudence and such other subjects as the board deems advisable.

Place and Time.—On the first Tuesday of January, April, July,

and October of each year at such places as the board may select.

Registration.—The license is to be recorded with the register of deeds of the county.

Fees.—For examination, \$20.00.

Reciprocity Regulation.—The board may grant licenses to candidates possessing a license, after examination, from another state, where standards are not lower than those of North Dakota.

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. H. M. Wheeler, secretary, Grand Forks.

Text of the amendment adopted by the last legislature :

AN ACT TO AMEND SECTION 277 AND SECTION 280 OF CHAPTER 4, OF ARTICLE 6, OF THE REVISED CODES OF 1899, RELATING TO THE PRACTICE OF MEDICINE, SURGERY AND OBSTETRICS.

Be it enacted by the Legislative Assembly of the State of North Dakota :

SEC. 1.—That Section 277 and Section 280 of Chapter 4 of Article 6, of the revised codes, be amended so as to read as follows :

SEC. 277. (*Examinations, How Conducted. Licenses, to Whom Granted and How Revoked.*)—All persons before commencing the practice of medicine, surgery or obstetrics in this state shall apply to the board of medical examiners for a license so to do, and such applicant shall submit to an examination in the following subjects : anatomy, physiology, chemistry, pathology, therapeutics, diseases of women and children, nervous diseases, diseases of the eye and ear, medical jurisprudence and such other subjects as the board deems advisable, and present evidence of having graduated from a reputable medical college and attended three courses of lectures of at least six months each; provided, however, that after the year 1904 applicants must present evidence of having graduated from a reputable college, and attended four courses of lectures of at least eight months each ; and the board shall cause such examination to be practical and scientific and sufficient to test the candidate's fitness to practise medicine, surgery and obstetrics; provided, however, that the examination of any applicant in therapeutics shall be conducted by the member or members of said board who represent the system of medicine of which such applicant has been a student. If there be no representative of the school or system of which the applicant has been a student, and examination in therapeutics shall be conducted by an examiner appointed for that purpose by the governor of North Dakota and all other examinations other than that in therapeutics shall be conducted as heretofore provided by this act.

If such applicant passes the prescribed examination the board shall grant him a license to practise medicine, surgery and obstetrics in this state, which

license shall be signed by the president and secretary of the board and attested by the seal thereof. The fee for such examination shall be twenty dollars, to be applied by the board toward paying the expenses thereof. The board, in its discretion, may grant license for the same fee without examination to applicants examined and licensed by other state examining boards maintaining standards not lower than those provided for in this article. The board may revoke or refuse a license for dishonorable or immoral conduct, chronic or persistent inebriety or mental aberration, excessive use of narcotics, or for the practice of criminal abortion. In complaints for violating the provisions of this section the accused shall be furnished with a copy of the complaint and be given a hearing before the board in person or by attorney.

SEC. 280. *Penalty for Practising without a License.*—Any person practicing medicine, surgery and obstetrics without a license or otherwise violating the provisions of this article is guilty of a misdemeanor, and upon conviction thereof is punishable by a fine of not less than fifty nor more than one hundred dollars, or by imprisonment in the county jail not exceeding thirty days, or by both. Nothing in this act shall be construed so as to prohibit gratuitous assistance to a sick or injured person in case of emergency.

SEC. 2.—That Section 277 and Section 280 of Article 6 of Chapter 4, of the revised codes of 1899, are hereby repealed and this act reenacted in lieu thereof, and nothing in this act shall be so construed as to repeal any other existing article or law.

OHIO.

Academic Requirement.—A four years' high school course.

Medical Requirement.—Graduation from a medical college accepted by the board after pursuing a four years' course.

Examination.—Before the state board of medical examiners in anatomy, physiology, chemistry, materia medica, practice, pathology, obstetrics, physical diagnosis and diseases of women and children.

Place and Time.—At Columbus on the first Tuesday of January, April, July and October of each year.

Registration.—The certificate of the board must be registered with the probate judge.

Fees.—For the examination, \$25.00; for the registration, fifty cents.

Reciprocity Regulation.—Applicants holding certificates issued by other state boards having equal requirements may be licensed without examination upon payment of a fee of \$50.00.

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. Frank Winders, acting secretary, Columbus.¹

For text of the act of 1900, see Bulletin of the American Academy of Medicine, Vol. 4, p. 750.

OKLAHOMA.

Medical Requirement.—Evidence of ten years' continuous practice or proof of graduation from a reputable medical college.

Examination.—Before the territorial board of health in anatomy, chemistry, physiology, materia medica and therapeutics, medical jurisprudence, surgery, obstetrics, physical diagnosis and the general practice of medicine.

Place and Time.—The application is made in writing and the board makes an appointment.

Registration.—The license issued by the board is to be registered in the office of the register of deeds.

Fee.—For the examination, \$5.00.

Executive Officer.—Dr. J. W. Baker, secretary, Enid.

For text of the act of 1903, see Bulletin of the American Academy of Medicine, Vol. 6, p. 556.

OREGON.

Medical Requirement.—The application for examination must show the actual time spent by the applicant in the study of medicine and surgery, and when. If such study were in an institution of learning, the name and location; if not, under whose tutorship the study was conducted. Also the time the applicant has been engaged in practice, giving details of places and dates.

Examination.—Before a board of medical examiners in anatomy, physiology, chemistry, materia medica, therapeutics, practice of medicine, surgery, obstetrics, diseases of women, medical jurisprudence and such other branches as the board shall deem advisable.

Place and Time.—At Portland, on the first Tuesday of January and July of each year.

Registration.—The license is to be filed with the county clerk.

¹ Dr. Winders' successor will not be elected until December.

Fees.—For the examination, \$10.00 ; for filing, fifty cents.

Reciprocity Regulation.—The board is privileged to arrange for the mutual acceptance of licenses with another state without examination, if the standard is as high as that of Oregon.

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. Byron E. Miller, secretary, DeKum Building, Portland.

PENNSYLVANIA.

Academic Requirement.—A course equivalent to the completion of the high school course.

Medical Requirement.—At least four years of medical study, three years of which must have been in a medical school, and a diploma in medicine.

Examination.—There are three boards of examiners working in harmony under the supervision of the medical council. The applicant must appear before one of the boards for examination in anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, therapeutics, practice of medicine and materia medica.

Place and Time.—At the places designated by the board in June and December.

Registration.—The license of the medical council is to be recorded in the office of the prothonotary.

Fees.—For the examination, \$25.00 ; for recording, \$1.00.

Reciprocity Regulation.—“And it is further provided, that applicants examined and licensed by state boards of medical examiners or state boards of health of other states, on payment of a fee of fifteen dollars to the medical council and on filing in the office of the medical council a copy of said license, certified by the affidavit of the president or secretary of such board, showing also that the standard of acquirements adopted by said state board of medical examiners or state board of health is substantially the same as is provided by Sections eleven, twelve and thirteen of this act, shall, without further examination, receive a license conferring on the holder thereof all rights and privileges provided by Sections fourteen and fifteen of this act.”
—From Section 13 of the Medical Practice Act.

Executive Officer.—Hon. N. C. Schaeffer, LL.D., superintendent of public instruction, Harrisburg.

PHILIPPINE ISLANDS.

Medical Requirement.—Graduation from a medical college recognized as reputable by the board of health for the Islands.

Examination.—Before a board of medical examiners.

Fee.—For the examination, \$15.00.

Executive Officer.—Dr. R. E. L. Newberne, secretary, Manila.

PORTO RICO.

Medical Requirement.—Graduates from medical schools recognized by the board of health.

Examination.—Before a board of medical examiners.

Fee.—For the examination, \$25.00.

Reciprocity Regulations.—The board may accept the license of a state board given after an examination, in lieu of an examination. Fee for accepting the license, \$25.00.

Executive Officer.—Dr. Quevedo Baez, San Juan.

RHODE ISLAND.

"Any reputable physician" may apply for examination before the state board of health.

Examination.—The examination covers anatomy and physiology, chemistry and materia medica, pathology, surgery, theory and practice, obstetrics and gynecology, hygiene and medical jurisprudence.

Place and Time.—At Providence, on the first Thursday of January, April, July and October.

Registration.—In the office of the town or city clerk, exhibiting the license from the board of health.

Fees.—For the examination, \$10.00 ; for the certificate, \$2.00 ; for registration, fifty cents.

Remarks.—The board has power to revoke licenses for cause.

Executive Officer.—Dr. Gardner T. Swartz, secretary, Providence.

SOUTH CAROLINA.

Academic Requirement.—"Sufficient preliminary education."

Medical Requirement.—Attending four full courses of lectures of at least 26 weeks each, no two courses being the same year, and receiving a diploma of M.D.

Examination.—Before the state board of medical examiners in general anatomy, physiology and histology, materia medica and medical botany, chemistry, bacteriology and pathology (Junior curriculum), regional anatomy ; practical hygiene, sanitary science and state medicine ; practical uranalysis ; therapeutics and toxicology, surgery, practical medicine and diseases of children ; practical obstetrics and gynecology and medical jurisprudence.

Place and Time.—At Columbia on the fourth Tuesday in April.

Registration.—By the clerk of the county court.

Fees.—For the examination, \$5.00 ; for registration, twenty-five cents.

Reciprocity Regulation.—The board may indorse without examination a license issued by other state boards having an equal standing, provided the courtesy is reciprocated.

Remarks.—The examinations are divided into two divisions, a Senior and a Junior curriculum. If the applicant, having pursued a four years' graded course, is able to present a certificate from the dean of his college that he has attained a mark of not less than 75 per cent. on each individual branch in the course, he is exempt from examination in the subjects included in the Junior curriculum ; namely, general anatomy, physiology and histology, materia medica and medical botany, chemistry, bacteriology and pathology.

Executive Officers.—Dr. W. M. Lester, secretary ; Dr. Mary R. Baker, assistant secretary, Columbia.

For text of the act of 1904, see Bulletin of the American Academy of Medicine, Vol. 6, p. 723.

SOUTH DAKOTA.

Medical Requirement.—A diploma from a medical college in good standing with the board after attending four full courses of lectures of at least 26 weeks each.

Examination.—Before a state board of medical examiners in

anatomy, physiology, chemistry, pathology, therapeutics, practice of medicine, surgery, obstetrics, gynecology, diseases of the eye and ear, bacteriology, medical jurisprudence and such other branches as the board may deem advisable.

Place and Time.—On the second Wednesday of July and January of each year.

Registration.—The license must be recorded in the office of the register of deeds.

Fee.—For the examination, \$20.00.

Reciprocity Regulation.—Licenses from other states of equivalent standing may be accepted without examination, if a reciprocal courtesy is extended.

Remarks.—The board may revoke licenses for cause.

Executive Officer.—Dr. H. E. McNutt, Aberdeen.

For text of the law of 1903, see Bulletin of the American Academy of Medicine, Vol. 6, p. 561.

TENNESSEE.

The determination of the qualification to practise medicine in Tennessee lies wholly with the board of medical examiners.

Examination.—An applicant must pass an examination in anatomy, physiology, chemistry, pathology, surgery, obstetrics, materia medica and practice.

Registration.—The license shall be recorded in the office of the county clerk.

Fees.—For the examination, \$10.00 ; for the certificate, \$5.00.

Remarks.—The board has the power to revoke licenses.

Executive Officer.—Dr. T. J. Happel, secretary, Trenton.

TEXAS.

No preliminary or medical educational qualifications are required in Texas.

Examination.—Before one of three boards of medical examiners in anatomy, physiology, chemistry, materia medica, therapeutics, histology, pathology, practice of medicine, surgery, including dis-

eases of the eye, ear, nose and throat, obstetrics, gynecology, hygiene and medical jurisprudence. The boards are independent of each other, but cannot examine an applicant rejected by either of the other boards.

Place and Time.—At least twice a year at such time and place as each board may determine.

Registration.—The license must be recorded in the district clerk's office.

Fees.—For the examination, \$15.00 ; for recording, fifty cents.

Reciprocity Regulations.—All persons who may change their residence to the state of Texas, on filing a true copy of a license granted by the board of medical examiners of another state or territory, certified by the affidavits of the president and secretary of said board, with satisfactory proof of the genuineness of the same, and showing that the standard of requirements of the medical laws of the said state or territory and that adopted by the said board of medical examiners are equal to that provided for in this act, and who, on payment of the usual fee of fifteen dollars, may be registered and receive a license from the board of medical examiners of Texas to practise in this state.

Executive Officers.—Dr. G. G. Jackson, secretary for the board representing the Texas Medical Society, San Antonio ; Dr. N. O. Berizer, secretary of the homeopathic board, Austin ; Dr. L. S. Downs, secretary of the eclectic board, Galveston.

UTAH.

Medical Requirement.—A diploma from a medical college maintaining a four years' course.

Examination.—Before a board of examiners in anatomy, physiology, hygiene, chemistry, pathology, diagnosis, surgery, obstetrics, gynecology, materia medica.

Place and Time.—At Salt Lake City on the first Monday in January, April, July and October.

Registration.—Record the certificate in the office of the county recorder.

Fee.—For the examination, \$15.00.

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. W. R. Fisher, secretary, Salt Lake City.

VERMONT.

Medical Requirement.—A graduate of a medical college recognized by the board of examiners.

Examination.—Before the state board of medical registration in anatomy, physiology, chemistry, pathology, practice of medicine, surgery, obstetrics, gynecology, hygiene and materia medica.

Place and Time.—At Montpelier on the second Tuesday in January and at Burlington on the second Friday in July.

Registration.—Record the certificate in the office of the secretary of state within thirty days after its issuing.

Fees.—For the examination, \$15.00 ; for recording, twenty-five cents.

Reciprocity Regulation.—The board may accept the licenses of boards of examiners of other states if the courtesy is reciprocated.

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. W. Scott Nay, secretary, Underhill.

AN ACT CREATING A BOARD OF MEDICAL REGISTRATION.

It is hereby enacted by the General Assembly of the State of Vermont:

SEC. 1.—A state board of medical registration is hereby created. Said board shall consist of seven (7) members, three (3) of whom shall be of the regular school of practice, two (2) of the homeopathic school of practice, and two (2) of the eclectic school of practice, and each shall be a graduate of a legally chartered medical college or university, having the power to confer the degree of doctor of medicine and surgery.

Three members of said board shall be appointed for a term of two (2) years, two for four (4) years, and two for six (6) years, and shall be appointed by the governor in the month of December, 1904, preference in said appointments to be given to the present members of the board of censors of the Vermont Medical Society, Vermont Homeopathic Medical Society, and the Vermont Eclectic Society.

The term of office of the members of said board shall begin on the fifteenth day of December next following their appointment.

SEC. 2.—It shall be the duty of the governor biennially in the month of November, beginning in 1906, to appoint physicians as members of the board of medical registration, to fill the place of those whose term of office is about

to expire, said physicians to be of the same school of practice as the physicians whom they are to succeed on the board, with the same proportion of regular, homeopathic, and eclectic physicians as constituted the original board; they to be graduates of a legally chartered medical college and in active practice of their profession, but no member of said board shall belong to the faculty of any medical college or university.

The appointments as provided in this section shall be made from a list to be nominated by the Vermont Medical Society, Vermont Homeopathic Medical Society, or Vermont Eclectic Medical Society, according as the term of office of the members representing each of these different schools of practice is about to expire, said list to contain at least twice the number to be appointed.

Such nominations shall be made at the annual meeting of the said medical societies during the year of the biennial session of the legislature. Such nominations shall be certified to by the president and secretary of the said societies and transmitted to the governor not later than the first of November during the biennial session of the general assembly.

In case, however, that no nominations are made by the said medical societies, then the governor shall appoint such physicians as he may choose, having regard to maintaining the same proportion of regular, homeopathic, and eclectic physicians as constituted the original board.

Vacancies in said board shall be filled by the governor and the person appointed to fill a vacancy shall hold office during the unexpired term of the member whose place he is to fill, and shall be of the same school of practice.

Any member of the board may be removed from office by the governor for cause.

SEC. 3.—The members of said board of medical examiners shall meet at the State House in Montpelier on the second Tuesday in January, and at Burlington on the second Tuesday in July, and at such other times and places as they may determine for the purpose of examining applicants for a license to practise medicine and surgery in the state, and shall be empowered to issue such license to persons found qualified.

The board may make such rules and regulations not repugnant to the laws of the state as may be necessary for the government of the board.

A majority shall constitute a quorum.

SEC. 4.—At the first meeting of said board on the second Tuesday of January, 1905, and biennially thereafter, they shall organize by choosing from their numbers a president, secretary, and treasurer, who shall hold their respective offices for two years or until their successors are chosen.

SEC. 5.—The secretary shall keep a record of the transactions of the board, and a separate record of the name, residence, college and date of graduation, of all persons licensed hereunder.

The treasurer shall receive all fees for licenses issued and keep a just and

true account of the same, and shall quarterly make a report to the state treasurer of all examinations given and licenses granted and pay into the state treasury all monies received by him for such examinations and licenses.

SEC. 6.—Members of the board shall receive \$4.00 per day and necessary expenses for time spent in examining applicants and granting licenses and all incidental expenses incurred in the examining of applicants and making and granting licenses ; provided the amount received from examinations and licenses under the provisions of this act shall be sufficient to pay the same, but if the auditor of accounts shall, at any time, find upon investigation that said sums are not sufficient to meet the per diem and the expenses as herein provided, then he shall allow the expenses in full and such a percentage upon the per diem that the expense to the state shall not exceed the receipts under the provisions of this act.

SEC. 7.—Any person twenty-one years of age and of good moral character, who is a graduate of a legally chartered medical college or university, having power to confer degrees in medicine and surgery, and said medical college or university being recognized as determined by the board, shall upon payment of a fee of fifteen dollars, be entitled to examination, and, if found qualified, shall be licensed to practise medicine and surgery in the state of Vermont and receive a license certificate signed by the president and secretary of the board.

Any person refused a license may be reexamined at any regular meeting of the board within one year of the time of such refusal without additional fee.

The board, after hearing, may revoke the certificate of any person licensed by them, who has been convicted before a court of a crime committed in the course of professional business.

SEC. 8.—The examination shall be in whole, or in part, in writing and shall be of a practical character, sufficiently strict to test the qualifications of the applicant as a practitioner of medicine.

The examination shall embrace the general subjects of anatomy, physiology, chemistry, pathology, practice of medicine, surgery, obstetrics, gynecology, hygiene, and materia medica, but it is hereby provided the examination in materia medica shall be conducted by the members of the board who represent the same school of practice as that of which the applicant is a graduate.

Each applicant shall pass at least an average of 75 per cent. to entitle him to a license.

SEC. 9.—A person to whom a license certificate is thus issued in order to make it valid shall, within thirty days from date thereof, cause the same to be recorded in the office of the secretary of state, in a book to be provided by said secretary of state, for that purpose, for which the record fee shall be twenty-five cents.

SEC. 10.—Any person who shall practise medicine or surgery under a fictitious or assumed name, or who shall personate another practitioner of a

like or different name, or who, not being licensed as aforesaid, shall advertise or hold himself out to the public as a physician or surgeon in this state, or sign a certificate of death for the purposes of burial or removal, shall be punished by a fine of not less than fifty dollars, nor more than two hundred dollars, or by imprisonment in the house of correction not more than three months, or both, and no action of any kind shall be had or maintained by any such person in any court in this state for the recovery of any compensation for such services.

SAC. 11.—Any person who shall advertise or hold himself out to the public as a physician or surgeon or who shall assume the title of doctor in the treatment of disease or who shall follow the occupation of treating disease by any system or method, shall, for the purposes of this act, be deemed a physician or practitioner of medicine or surgery. Nothing, however, in this act shall in any way affect the provisions of No. 110 of the acts of 1902 or apply to persons licensed by any other board having legal authority to issue licenses in this state.

SAC. 12.—It shall be the duty of the board to investigate all complaints of disregard, non-compliance or violation of the provisions of this act, and to bring all such cases to the notice of the proper prosecuting officer.

SAC. 13.—This act shall not apply to persons legally licensed to practise medicine and surgery under the provisions of former acts, nor to persons who resided and practised medicine in the state five years previous to the 28th day of November, 1876, nor to commissioned officers of the U. S. army, navy, or marine hospital service, nor to the practice of midwifery by women in the town or locality in which they reside, nor to a physician or surgeon who is called from another state, or the Dominion of Canada, to treat a particular case, and who does not otherwise practise in this state, provided, however, that such non-resident physician is legally licensed where he resides, and provided, further, that the state from which he comes, or the Dominion of Canada, grants the same privilege to legally licensed practitioners of the State of Vermont.

Nothing in this act, however, shall be construed to prevent any non-resident physician or surgeon from coming into the state in consultation with a legally qualified practitioner in this state.

SAC. 14.—The board shall issue licenses without examination to reputable physicians and surgeons who shall personally appear and present a certified copy of certificate of registration, or license, which has been issued to said applicant in another state in the Union, where the requirements for registration shall be deemed by said board to be equivalent to those of this state, provided such state shall accord a like privilege to holders of a license granted under the laws of this state.

Each applicant for such license shall pay to the board the sum of ten dollars.

SAC. 15.—Sections 4630, 4631, 4632, 4633, 4634, 4635, 4636, 4637, 4638,

4639 and 4640 of the Vermont statutes and all amendments thereto and all acts inconsistent with this act are hereby repealed.

SAC. 16.—This act shall take effect from its passage.

Approved December 9, 1904.

VIRGINIA.

Medical Requirement.—Graduation from a college conforming to the requirements of the Association of American Medical Colleges.

Examination.—Before the state board of medical examiners.

Place and Time.—In June and October, at places determined by the board.

Registration.—Record the certificate in the office of the county clerk, for which he shall collect the same fee as for recording a deed.

Fee.—For the examination, \$10.00.

Reciprocity Regulation.—The board has the discretion to accept the license of another state board of examiners in lieu of an examination.

Remarks.—Medical students may take part of the examination before graduation and, if passing, will not be examined in these subjects again.

Executive Officer.—Dr. R. S. Martin, secretary, Stuart.

For text of the act of 1900, see Bulletin of the American Academy of Medicine, Vol. 4, p. 770.

WASHINGTON.

Medical Requirement.—A diploma from a medical college maintaining a four years' course.

Examination.—Before the state board of medical examiners in anatomy, physiology, chemistry, histology, materia medica, therapeutics, preventive medicine, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear, medical jurisprudence and such other branches as the board may deem advisable.

Place and Time.—In January and July, at Seattle.

Registration.—Record the certificate in the office of the county clerk.

Fee.—For the examination, \$25.00.

Reciprocity Regulation.—An amendment to the law of 1901 omits all references to the acceptance of the license issued by another state.

Remarks.—The board may revoke a license for cause.

Executive Officer.—Dr. C. W. Sharpless, secretary, Seattle.

WEST VIRGINIA.

The examination before the state board of health is the only test required by the West Virginia law.

Examination.—The candidate must pass in anatomy, chemistry, bacteriology, hygiene, materia medica, physiology, practice, surgery, gynecology and obstetrics.

Place and Time.—As advertised by the board in the daily press from time to time.

Registration.—In the office of the secretary of the state board of health.

Fees.—For the examination, \$10.00. There is no fee for registration.

Remarks.—The board can revoke a license for cause.

Executive Officer.—Dr. H. A. Barber, secretary, Point Pleasant.

WISCONSIN.

Academic Requirement.—Equivalent to that necessary for entrance to the Junior class of an accredited high school in Wisconsin, including one year's course in Latin. After 1906 this is to be increased to an equivalent to graduation from high school.

Medical Requirement.—Graduation from a medical college having not less than four courses of at least seven months each.

Examination.—Before the state board of medical examiners in anatomy, histology, physiology, obstetrics, gynecology, pathology, urinalysis, chemistry, toxicology, dietetics, physical and general diagnosis, hygiene, theory, and practice.

Place and Time.—At Milwaukee on the second Tuesday in January and at Madison on the second Tuesday in July.

Registration.—Record the certificate with the county clerk.

Fees.—For the examination, \$15.00 ; for the certificate, \$5.00 ; for recording, fifty cents.

Reciprocity Regulation.—Licenses issued by the state boards of other states having an equivalent standard, may be accepted. The fee for indorsing such a license is \$25.00.

Remarks.—Revoking a license is secured by a legal procedure and it is the duty of the board to investigate all complaints and, if well founded, to bring them to the notice of the proper prosecuting officer. The law exempts medical students in Wisconsin colleges at the time of the passage of the act from examination.

Executive Officer.—Dr. J. V. Stevens, secretary, Jefferson.

For text of the act of 1903, see Bulletin of the American Academy of Medicine, Vol. 6, p. 576.

WYOMING.

Medical Requirement.—Graduation from a medical college recognized as in good standing by the board of examiners of the state in which it is situated.

Examination.—Before the state board of medical examiners in anatomy, physiology, chemistry and toxicology, pathology, diagnosis, gynecology, the principles of surgery, obstetrics, hygiene and bacteriology, and such additional branches as are necessary to complete the system of which he is a practitioner.

Place and Time.—At stated periods to suit the convenience of the board and the applicants, not to exceed four examinations in one year.

Registration.—Record the certificate in the office of the county clerk.

Fee.—For the examination, \$25.00.

Reciprocity Regulation.—The board is privileged to accept licenses of another state board in lieu of an examination if the courtesy is reciprocated.

Remarks.—The board may revoke a license for cause. The act applies to apothecaries and pharmacists who prescribe for the sick.

Executive Officer.—Dr. C. P. Johnson, secretary, Cheyenne.

AN ACT TO AMEND AND RE-ENACT CHAPTER 5, DIVISION I, TITLE XVI,
REVISED STATUTES OF 1899 RELATING TO THE STATE BOARD OF
MEDICAL EXAMINERS.

Be it enacted by the Legislature of the State of Wyoming:

APPOINTMENT OF BOARD. SEC. 1.—The governor, by and with the consent of the senate, appoint three regular licensed physicians of the State of Wyoming, who shall constitute the state board of medical examiners, and who shall hold office for a term of four years. Any vacancy which may occur in said board from any cause shall be filled by appointment by the governor, and the physicians so appointed shall hold his office until the expiration of the term.

ORGANIZATION. SEC. 2.—The members of the said board of medical examiners shall meet and organize within thirty days after their appointment by taking an oath faithfully to discharge the duties of their office, which oath shall be filed with the secretary of state, and by the election of a president, and vice-president and secretary. They shall provide such blanks and certificates as are necessary to comply with the provisions of this act, and an appropriate seal, which shall be attached to all official papers issued by the said board, and they shall, from time to time, adopt such rules and regulations as shall be deemed necessary in the performance of their duties consistent with the requirements of this act.

DUTIES. SEC. 3.—It shall be the duty of the said board to pass upon the qualifications and determine the fitness of all persons who may desire to practise medicine, surgery and obstetrics, or who may publicly profess in any manner to assume the responsibility of the care or treatment of disease, injury or deformity of human beings in the state.

REQUIREMENTS. SEC. 4.—Every person wishing to practise medicine in any of its departments in this state shall possess the qualifications required by this act. He shall be a graduate from a regularly chartered college of the system which he claims to practise. Said college must be recognized by the state board of health or the state board of medical examiners of the state in which it is located. He shall give evidence of the fact that he is a person of good moral character, and that he shall not be the victim of such habits as shall cause him to endanger the lives of those entrusted to his care. He shall present his diploma to the state board of medical examiners for verification as to its genuineness. Said certificate shall consist in the affidavit of the holder of the diploma that he is the lawful possessor of the same and that he is the person therein named. Such affidavit

may be taken before any person authorized to administer oaths, and the same shall be attested under the hand and seal of such officer. He shall appear before the state board of medical examiners in person at a time and place appointed, and shall pass an examination sufficiently strict to test his qualifications as a practitioner. Said examination may be in whole or in part in writing. It shall be of an elementary and practical character, and shall be upon the following subjects: anatomy, physiology, chemistry and toxicology, pathology, diagnosis, gynecology, the principles of surgery, obstetrics, and bacteriology. He shall further be required to pass an examination in such branches as are necessary to complete the system of which he is a practitioner. If the applicant is a practitioner of any school or system not represented in the membership of the board, the board shall have authority to call a regularly licensed practitioner of that system to assist in the examination. The practitioner thus called shall receive a compensation of five dollars for each person examined. An average grade of seventy-five per cent. in all branches of the examinations shall be required; provided, that the applicant shall not pass lower than sixty per cent. in any one branch. Said examination shall be conducted by and under the supervision of the secretary of the board, with such assistance from the other members shall be agreed upon by them. Said examination shall be held at stated periods to suit the convenience of the board and applicants; provided, that not more than four examinations shall be held in one year.

The president and secretary of the state board of medical examiners shall issue certificates to all persons who successfully pass said examinations, and such certificates, after being duly recorded as hereinafter provided, shall be deemed license to practise medicine in all branches in which the applicant has taken examination in this state. No application for license to practise medicine in this state shall be rejected because of adherence to a particular school of practice. All persons who are licensed practitioners in this state prior to the passage of this act shall be exempt from its requirements.

APPLICATIONS—FEES. SEC. 5.—The state board of medical examiners shall receive through its secretary, applications for certificates and examinations. A fee of twenty-five dollars shall accompany each application. Should the applicant fail to pass the examination, he may present himself at any time within a period of one year for another examination without the payment of an additional fee.

ADMISSION WITHOUT EXAMINATION. SEC. 6.—Said board may, in its discretion, accept and register, upon payment of the registration fee and without examination of the applicant, any certificate which shall have been issued to him by the medical examining board of the District of Columbia, or of any state or territory of the United States; provided, however, that the medical requirements of such medical examining board shall have been, at the time of issuing such certificate, in no degree or particular less than those of Wyoming at the time when such certificate shall be presented for

registration to the board created by this act; and, provided, further, that the provisions in this section contained shall be held to apply only to such of said medical examining board as accept and register the certificates granted by this board without examination by them of the ones holding such certificates.

WHO ARE PRACTISING PHYSICIANS. SEC. 7.—Any person shall be regarded as practising medicine, within the meaning of this act, who shall in any manner hold himself out to the public as being engaged within this state in the diagnosis and treatment of diseases or injuries or deformities of human beings; or who shall suggest, recommend or prescribe any form of treatment for the intended palliation, relief or cure of any physical or mental ailment of any person with the intention of receiving therefor, either directly or indirectly, any fee, gift or compensation whatsoever; or who shall maintain an office for the reception, examination and treatment of any person suffering from disease or injury of body or mind; or who shall attach the title of M.D., Surgeon, Doctor or any other word or abbreviation to his name indicative that such person is engaged in the practice of medicine as hereinafter defined.

EXAMINATION PAPERS. SEC. 8.—The examination papers of applicants, when placed in the hands of the secretary, shall become the property of the state and shall remain in the possession of the state board of medical examiners, and the questions and answers of any examinations, together with the gradings thereon, shall be subject to inspection at any time at the secretary's office.

CERTIFICATE TO BE RECORDED. SEC. 9.—Every person holding a certificate, as having successfully passed an examination before said board of medical examiners shall have the same recorded at the office of the county clerk of the county in which he resides, and the date and place of record shall be endorsed thereon. Any person moving to any other county to practise shall procure a certificate to that effect from the county clerk, and the holder of the certificate shall pay to the county clerk the usual fees for making the record.

RECORD OF COUNTY CLERK. SEC. 10.—The county clerk shall keep in a book provided for that purpose a complete list of all the certificates recorded by him, with the date of issue.

MEDICAL FUNDS. SEC. 11.—The fees received by the said board of medical examiners from examination shall be kept in a fund to be known as the "Medical Fund," and shall be subject at all times to the warrant of the state auditor drawn upon written requisition of the president and attested by the secretary of the state board of medical examiners, with seal attached, for the payment of any expenses made by said board.

REFUSAL OF CERTIFICATE. SEC. 12.—Said board of medical examiners may refuse certificates to individuals guilty of malpractice or dishonorable conduct, or who shall have been convicted of penal offenses before any

court in the state or elsewhere; or may revoke certificates for like causes, such revocation being after due notice and trial by the board of medical examiners, subject to the right of an appeal to the district court of the county in which said individual resides; but no such revocation shall be made by the reason of the individuals belonging to or practising any particular school or system of medicine.

APPLICATION OF THIS ACT. SEC. 13.—Nothing in this act shall be construed to prohibit gratuitous service in case of emergency, and this act shall not apply to commissioned surgeons of the United States army or navy, or medical examiners of relief departments of railroad companies, while so employed, or any lawfully qualified physicians residing in other states or counties meeting registered physicians of this state in consultation, or any physician or surgeon residing upon the border of a neighboring state, and duly authorized under the laws thereof to practise medicine and surgery therein, whose practice extends into the limits of this state. This act shall apply to apothecaries and pharmacists who prescribe for the sick.

PENALTY. SEC. 14.—Any person practising medicine within the meaning of this chapter in this state without complying with the provisions of this act shall be deemed guilty of misdemeanor and punished by a fine of not less than fifty dollars nor more than three hundred dollars, or by imprisonment in the county jail for not more than one year, or both; and each person filing or attempting to file as his own, the diploma of another or a forged affidavit of identification shall be guilty of felony, and upon conviction thereof shall be imprisoned in the penitentiary for a term not exceeding three years.

EXAMINATION. SEC. 15.—The state board of medical examiners shall examine all persons upon the theory and practice of obstetrics who profess to practise obstetrics and midwifery, who do not have authority to practise medicine or surgery; and they may issue to such candidates and person or persons who shall pass a satisfactory examination, certificates which shall authorize and empower them to practise obstetrics or midwifery. No person shall practise obstetrics or midwifery unless either a practising physician, or authorized to practise under the provisions of this act, or holding such certificates as are prescribed by this section; provided, that nothing in this section shall be construed to prohibit persons from rendering services in cases of obstetrics or midwifery in cases of emergency.

SALE OF MEDICINE BY ITINERANT. SEC. 16.—Any itinerant who has not qualified as hereinbefore provided, who shall sell or offer for sale any drug, nostrum or appliance of any kind intended for the treatment of any disease or injury or deformity, or for correction of impairment of vision or hearing, or shall by writing, printing or other method, except by ordinary professional card or sign, publicly profess to cure or treat disease, injury or deformity, by any drugs, nostrum, or in any manner whatever, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined

in any sum not less than fifty dollars nor more than one hundred dollars, and costs of prosecution, for each offense, and shall be committed until such fine and costs are paid; provided, that any who shall maintain an office or residence in the state for a period of not more than three months in any one year shall be deemed an itinerant.

SALARY OF SECRETARY. SEC. 17.—The secretary of said board shall be paid a salary which shall be compensation for the actual work done in the performance of the duties of his office, the amount thereof to be fixed by the board, not to exceed the sum of twenty-five dollars per month, the same to be paid out of the Medical Fund by warrants drawn by the state auditor upon being filed with the state auditor a certificate to be signed by the president and secretary of the board, with the seal of the board attached, showing that the secretary has acted in that capacity for the time for which his bill is presented. The other members of the board shall receive the sum of ten dollars per day while actually employed in attending meetings of the board, or in carrying out the provisions of this act. Members of the board shall also receive their actual traveling and necessary expenses while engaged in the performance of their duties, to be paid out of the Medical Fund upon warrants to be issued by the state auditor, and all bills therefor shall be accompanied by a certificate signed by the president and secretary of the board, with the seal of the board attached, attesting the correction of the bill.

ACTS INCONSISTENT. SEC. 18.—All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

SEC. 19.—This act shall take effect and be in force from and after its passage.

Approved February 15, 1905.

MEDICAL RECIPROCITY.

By B. D. HARRISON, M.D., Secretary American Confederation of Reciprocating, Examining and Licensing Medical Boards, Saulte Ste. Marie, Mich.

There is probably no more interesting as well as practical subject before the profession to-day than that of medical reciprocity between the several political divisions within the United States. The interstate recognition of, and official endorsement and exchange of, medical licenses has been the subject of much discussion in medical associations and journals during the past few years, but until within three or four years ago absolutely nothing of a practical nature had been accomplished to give effect to a provision almost unanimously recognized by the profession of this country as possessing not only the virtues of right and expediency, but designed also to relieve a condition in medical licensure which is solely responsible for the unnecessary and expensive hardships connected with a repetition of the tests of government qualification and recognition for the practice of medicine to those reputable and qualified practitioners removing from one state in the Union to another state.

There are two classes of practitioners affected by medical reciprocity, namely :

I. Recent graduates of medical colleges who have obtained their state licenses through the qualification of a state medical board examination.

II. Older graduates of medical colleges who have obtained their state licenses through the qualification of registration upon the basis only of their recognized medical diplomas.

Those practitioners under Class I. form at the present time approximately not more than 10 per cent. of the total of practitioners, and their claims for consideration through reciprocity are subject to a great deal of discount, owing to the fact of their recent graduation, and therefore naturally an examination and the meeting of advanced requirements of medical course should not be a difficult matter, but rather a matter of course.

Those physicians under class II. form 90 per cent. of worthy practitioners, and owing to their graduation in the majority of

instances several years ago, to them an examination naturally is a hardship, if not an impossibility, and in addition they are not able to comply with the advanced requirements, such as graduation after a four years' course of eight or nine months in separate years, or perchance their college of graduation is extinct, and therefore not on the "approved list."

In this latter, Class II., will be found at least 90 per cent. of the experienced and notable men in the profession, the professors and teachers in medical colleges and members of state boards.

A measure of reciprocity, then, that includes only those members of the profession in Class I., the recent and inexperienced graduates, and excludes 90 per cent. of those to whom reciprocity is a deserving and relieving measure, is unworthy the consideration of intelligent and self-respecting members of the profession.

Several years ago a confederation of state medical boards (so-called) was formed, whose membership was composed of members and ex-members of state licensing boards, educators, and others interested in medical reciprocity, and this confederation met yearly at the same time and place, and as an unofficial annex of the A. M. A. This association, however, was unofficial and secular, from the fact that in its method of membership it neither represented officially the medical boards nor the profession as legally constituted. A large portion of its time and energy was spent in discussing the difficulties and impossibilities connected with medical reciprocity, and it recognized as deserving material for reciprocity favors only those practitioners included in Class I. A very large portion of its membership was composed of members of the profession who assumed a certain amount of leadership in the, to-day, popular question of medical reciprocity, and who occupied positions giving them the authority to advise or influence its adoption in certain states, but who utterly and completely failed to understand the legal and practical questions involved in the subject and who insisted upon a purely theoretical basis founded upon conditions which should exist, conditions which are impossible not only in this world but in the world to come.

These self-constituted leaders, while well-intentioned, were really the much-sought-for "hindrances to reciprocity" the favorite

subject for discussion in the confederation, and patience and time only have been the means by which these well-intentioned persons, whose assumption of knowledge on the subject of reciprocity and whose positions gave them a certain influence and authority, have been reduced to an inactive and innocuous state in the interests of the practical work which has already been done and which will continue in the future, notwithstanding the "hindrances to reciprocity" arising from time to time in the form of such persons described as above.

One of the impossible propositions seriously considered by this confederation was the suggestion of a National Examining Board, and the author of this impossible suggestion even now is waiting the opportunity of launching another equally impossible proposition, that of the examining board of the proposed Reserve Medical Corps of the U. S. A., a board as yet legislatively unborn.

It will be noted that Class I. is still a favorite subject of his good intentions and that his fellow practitioners are still unworthy of his present consideration and future efforts. In a letter written a short time ago this author of impossibilities and improbabilities stated that medical reciprocity was not only undesirable but impossible, notwithstanding the fact that some twenty states are at the present time actively engaged in the endorsement of each other's licenses, and that the majority of such states include both classes of practitioners under Classes I. and II. in their reciprocal arrangements. It must also be noted that the states in which these well-meaning persons have their residence and influence are still without the reciprocity fold, and the reason for this, in the light of the above criticism, should be self-apparent.

In 1902 the state medical boards representing Michigan, Wisconsin and Indiana, through their executive officers, met in Chicago and organized The American Confederation of Reciprocating, Examining and Licensing Medical Boards. The following quotations from its constitution are self-explanatory:

"Any examining or licensing board of any state, territory, district, or province of the United States, having a medical practice law requiring an examination before said board and requiring

thorough professional qualifications as the basis of legal authority to practise in said state, territory, district, or province, and providing for interstate reciprocity, shall be eligible for membership in this confederation, and may obtain membership by the signature of its authorized representative to this constitution, and maintain such membership by compliance with the requirements of the constitution and by-laws of the confederation."

"The object of this confederation shall be to establish reciprocal relations between the medical examining and licensing boards of the states, territories, districts and provinces of the United States, the purpose of which being that thoroughly worthy and well-qualified physicians and surgeons, who have been legally qualified to practise under the laws of one of said states, territories, districts or provinces, may be given legal authority and be admitted to practise in any state, territory, district or province represented in this confederation, without a repetition of the tests of qualification to which such practitioner has submitted."

Membership in the American Confederation is composed of state medical boards, not members or ex-members of state boards, or educators in medicine. The status, therefore, of the American Confederation is that of an association of executive officers of state medical boards, consequently it has a legal status in the several states whose boards have membership. The American Confederation, therefore, has authority to do practical and actual work in connection with medical reciprocity, and the fact that previous to its foundation, some three years ago, practically no medical reciprocity was in effect in any of the states, and that to-day some twenty of the states are actually and actively engaged in endorsing each other's medical licenses without examination as a basis for legal medical registration, furnishes sufficient evidence of not only the necessity of this confederation but also demonstrates its present activity and future usefulness.

Dr. Samuel C. Jones, President of the Association of American Medical Colleges, in his address in Chicago in May last, states :

"I wish to commend very highly the work of the American Confederation of Reciprocating, Examining and Licensing Med-

ical Boards, which has a membership of fourteen states. Their work is along the lines of uniformity of entrance and graduation requirements, uniformity in state board examinations, uniformity of forms, and modifications necessary in reciprocal qualifications. The work of this association has been the means of accomplishing much for the schools under their jurisdiction. The aims of this body are so highly commendable, and its work is so important and far-reaching that we would do well to encourage this body and assist them in every way possible."

The following basis of reciprocal medical registration has been adopted by the American Confederation :

PREREQUISITE CREDENTIALS.

(A) As a prerequisite to reciprocal registration, the applicant therefor shall file in the office of the board of the state of which he is a licentiate such evidence as will enable the aforesaid board to certify that he is of good moral and professional character. In connection therewith, as evidence of moral and professional character after graduation and licensure, each applicant, shall present, from his former home, to the state board in which registration is sought, satisfactory evidence that he has been, for at least one year, a member in good standing of the county, state or national medical organization of the school or system of practice to which he belongs, and a certificate of recommendation issued to him by vote, at a regular meeting of the society in which his membership originated, that he is worthy of registration anywhere, and such certificate of recommendation may be treated as part of such application and considered in connection with the other evidence presented.

(B) Each applicant shall be required to furnish, in addition to the evidence under (A), an affidavit that in good faith he has abandoned practice in the state from which he came and that it is his intention to become a permanent resident of the state in which such application is made.

QUALIFICATION I.

(C) A certificate of registration showing that an examination was less than that prescribed by the state in which an average

grade of not less than 75 per cent. was awarded, the holder thereof having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in the state where reciprocal registration is sought, may be accepted, in lieu of examination, as evidence of qualification. Provided, that in case the scope of said examination was less than that prescribed by the state in which registration is sought, the applicant may be required to submit to a supplemental examination by the board thereof in such subjects as have not been covered, and, provided, that the applicant had been engaged in the reputable practice of medicine at least one year in the state issuing the certificate on which endorsement is sought.

QUALIFICATION II.

(D) A certificate of registration or license issued by the proper board of any state, may be accepted as evidence of qualification for reciprocal registration in any other state. Provided, the holder of such certificate had been engaged in the reputable practice of medicine in such state at least one year ; and also provided, that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college, in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the examination test in such state.

In Qualification (A) it will be noted that evidence is required which may be furnished easily and without expense by any physician who is a member in good standing in the organizations of the system of practice to which he professes to belong, and, what is probably of still more importance, as quacks are nearly always migratory characters, it requires a character of evidence which they can never furnish.

Qualification (B) is a necessary safeguard against the abuse of the privileges of reciprocity, especially in the health-resort states, by a class of practitioners who desire to move in and out with the pleasure and health seekers. These requirements put the whole question of reciprocity on such a broad and comprehensive

basis as to seem to put them ultimately within the reach of all of the states.

Qualification No. I (C) eliminates completely a repetition of the "tests of qualification" to which a practitioner has submitted and provides the only legal, equitable and practical method of overcoming the inequality of state requirements, namely, "a diploma from a medical college in good standing in the state where reciprocal registration is sought" and "a supplemental examination if necessary."

Qualification No. II (B) applies to those "practitioners" who obtained their state licenses on the basis of a faculty examination (college diploma) previous to the date of the double examination requirements (college diploma and state certificate) in states. Under this qualification no state is required to accept an applicant whose diploma dates subsequent to the date of the double examination test in such state. In other words, the applicant, if he had applied for registration in such state at the time of his graduation, would have been accepted. Therefore, the state, under Qualification II, dates back the application. The applicant, in addition to a standard qualification recognized as such at the date of issue, at this time also possesses several years of practical experience, which is in itself a legal qualification asset, and has, further, been investigated and recommended by the state in which his professional work has been done.

Could any provision for reciprocity be fairer, more equitable, more consistent with constitutional as well as statutory law—broad and yet conservative, insisting on an exact legal qualification at the date of registration, than Qualification II? It includes fully 75 per cent. of those practitioners to whom the benefits of practical reciprocity apply. Reciprocal legislation, which provides only for the present and future practitioner and ignores the older and experienced practitioner for the reason that the latter has not obtained his license through a state board examination, is not only irrelevant and unjust, but is also unconstitutional.

Several of the state medical boards are committed to the policy of recognizing for interstate exchange certificates of registration or licenses obtained solely on the basis of an examination on

stated subjects before state medical boards. It may be of interest to these boards to learn that any scheme of medical reciprocity which includes only licentiates who obtained their medical licenses on the basis of a state board examination, and which excludes licentiates who obtained their medical licenses on the basis of a college diploma, is, as I have stated above, unconstitutional, and unquestionably would be held so by any one of the several state supreme courts or the United States Supreme Court, for the following reasons :

State legislatures have up to a certain date provided as a qualification for registration or license subsequent to the passage of medical acts, a single examination of a certain grade, either by a state board of medical examiners or by a faculty of a medical college recognized by a board of medical registration and examination in lieu of such examination. More recent legislation in many states provides, however, for a double examination for license—one by a recognized faculty and one by a medical board.

Up to the date of a double examination requirement by a state board, the legal status of a college faculty examination fully equals that of a state board examination.

It is, therefore, illegal and unconstitutional for a medical board to recognize as a qualification for license a state board examination and refuse recognition as a qualification for license a recognized medical faculty examination up to the date when the law required the double examination qualification.

The legal point in the matter centers on the examination qualification as a requirement for license, and the fact that two kinds of examinations are equally recognized in law up to the date of a double examination requirement. In order to understand the legal point involved, it is necessary to separate the *fact* from the *form*, the latter representing the diploma from the college and the certificate from the board, and the former representing the examination by which the diploma or certificate was obtained. The form is of very minor importance and is useful only for identification purposes, but the fact (the examination) contained in the diploma or certificate is the material substance affected by reciprocity.

Congress recognized the principles of law involved in the above by the passage of the following law as a basis for reciprocity in the District of Columbia last January, which practically includes in half a dozen lines all the provisions contained in Qualifications I and II :

The board is authorized to issue an endorsement of the license of another state, if the applicant acquired the right to practise medicine and surgery in such jurisdiction under conditions equivalent to those with which he would have had to comply in order *then* to have practised medicine and surgery in the District of Columbia.

The California medical reciprocity law contains principles in law exactly opposite to the provisions passed by Congress above quoted :

" Said board may, in its discretion, accept and register upon payment of the registration fee, and without examination of the applicant, any certificate which shall have been issued to him by the medical examining board of the District of Columbia, or of any state or territory of the United States ; provided, however, that the legal requirements of such medical examining board shall have been, *at the time of issuing such certificate*, in no degree or particular *less than those of California at the time when such certificate shall be presented for registration to the board* created by this act ; and provided, further that the provisions in this paragraph contained shall be held to apply only to such of said medical examining boards as accept and register the certificates granted by this board without examination by them of the ones holding such certificates."

This law creates a favored class of practitioners with an increased status, and it illegally and unjustly deprives a large percentage of its licentiates of their legal status. For example, a practitioner is not only able to, but actually meets, the California requirements this year. He is also able at this time to meet the Michigan requirements. Next year the California requirements are raised slightly above those possessed by this practitioner, say one hundred additional lectures in the four-year course, or nine months instead of eight months in the yearly course. In order to reciprocate under the California law Michigan must have an equal

requirement, consequently our practitioner, as above, by the raising of the standard has been *delegalized*, and his status as an intended Michigan practitioner is cut down, for he cannot, as a consequence of the California board's action in raising its standard, obtain reciprocal registration in Michigan in 1906, although qualified to do so at the time of his registration in California in 1905. The District of Columbia law would have preserved to him his status. The California law deprives him of his constituted rights.

The practitioner who at the date of his graduation had fulfilled all and every legal requirement of education in state registration could not legally have been required twenty-five years ago to take the four years' course when only a two years' course was given in his legally reputable and at that time high-standard medical college. He could hardly have been expected to be required to take the course in bacteriology when no such course was given. And, again, he could not have been expected to have passed a state board examination twenty years previous to the creation of a board in his state. But notwithstanding all of these impossibilities being quite apparent, state boards of the New York and Pennsylvania type are contending for medical reciprocity upon the qualification only of a recognized diploma and a state board examination.

A state neither gains nor loses in its standard of qualification through adoption of Qualification No. II, or by its recognition of the claims of these practitioners who form at least 90 per cent. of desirable reciprocal material. The experience of Michigan has been that under Qualification No. II as many go to other states as come from other states, and the average standard of qualification of those coming in equals the standard of those going out.

Medical reciprocity between the several political divisions of the United States is not an experiment or a theory, but at the present time a practical and an actual accomplishment. The following states are at this time actively engaged in endorsing each other's licenses as a qualification for medical registration and licensure; namely, Michigan, Wisconsin, Indiana, Iowa, Maryland, Kansas, Nebraska, Minnesota, Wyoming, North Dakota, Missouri, Nevada, Virginia, Ohio, Illinois, Maine, New Jersey, Georgia, South Carolina.

The practical provisions in handling medical reciprocity naturally belongs to the boards of the several states interested. This has been plainly demonstrated by the results thus far accomplished by the American Confederation of Reciprocating, Examining and Licensing Medical Boards. This confederation does not represent any school or sect, but rather the medical laws of the several states. While the moral support and advice of the several school societies and associations are most helpful and welcome, any activity from them further than this would be most harmful to the cause of medical reciprocity.

IN PASSING

The 30th annual meeting of the American Academy of Medicine will be held at the Assembly Hall of the Northwestern University Building, corner of Lake and Dearborn Streets, Chicago, on Thursday and Friday, November 9 and 10, 1905. The following preliminary arrangements have been made :

THURSDAY, NOVEMBER 9.

First Session.

9.00 A. M. Adjourned meeting of the Council, which will hold its first session on Wednesday evening. Applications for admission to be acted upon at the first session should be in the Council's possession for this meeting.

10.00 Meeting of the Academy—Executive session.
Report of the Council, election of fellows, appointment of committees and similar business.

The Executive sessions are open to members only.

11.00 Open session.

I. Report of the Committee on Medical Practice Acts.

As the Academy entered upon its study of medical legislation in 1880, this meeting marks a quarter century of investigation. A report calling attention to some of the imperfections of the present medical laws will be presented in addition to the usual statistics and digest of laws. This can furnish a text for valuable discussion.

II. Report of the Committee to Investigate the First Degree in American Colleges.

The report of this committee is preliminary. The purpose of appointing the committee was to determine if the first degree of any of our colleges did not indicate sufficient preliminary training to be accepted as a qualification for admission to the Academy: A report for an executive session. It found that first it was necessary to define a standard, and the report gives the efforts of the committee to secure data and to formulate the requirements necessary before entering upon the study of medicine.

The report will be divided into three parts.

1. The character; or the quality of the raw material fitted to be shaped into a physician.
2. The mental development necessary before entering upon medical study.
3. The facts that should be possessed by the student that he may properly undertake the study of medicine.

Any presentation of this subject offers opportunity for valuable discussion.

III. The Report of the Committee on Teaching Hygiene in the Public Schools.

This committee made the first of its series of reports last year; and the value of that report is an earnest of those which are to follow.

This year the committee will report on: The present teaching of "Domestic Science" and "Nature Study" in public schools so far as these branches include teaching hygiene.

Full opportunity will be given for the discussion of these reports.

The Academy will take a recess for luncheon at one, reassembling at three.

Second Session.

- 8.00 P. M. When Dr. Winfield S. Hall will deliver the president's annual address. Subject: "Altruism in the Medical Profession."

FRIDAY, NOVEMBER 10.

Third Session.

- 10.00 A. M. Executive session (with closed doors).
10.30 Open session.

SYMPOSIUM.

"The Influence of Recreation upon the Individual and the Community from Medical and Sociologic Standpoints."

Papers already promised:

1. "The Physiology of Recreation." G. W. McCaskey, Fort Wayne Ind.,

2. "Recreation in Its Influence on the Nervous System." W. J. Herdman, Ann Arbor, Mich.
3. "The Ceremonial and Festa in the Organized Recreation of Larger Groups of Individuals." Bayard Holmes, Chicago.
4. "The Relation of Recreation to Education."
5. Robert K. Row, Berwyn, Ill.

After the general discussion of this series of papers, the following papers will be offered for discussion.

- "Maturation and Senility." A. L. Benedict, Buffalo.
- "The Medical Features of the *Papyrus Ebers*." Carl H. von Klein, Chicago.

There will be a recess from one to three, and at the conclusion of the discussions there will be an executive session.

Fourth Session.

8.00 P. M. The last session will be the "social session." Following the rule of the Academy, members are privileged to bring guests—ladies as well as gentlemen. Fuller particulars of the meeting in the final program, as some innovations are contemplated.

A brief business session, when President Hall will welcome the newly elected president, will be a part of the evening's program.

The medical profession not only, but any one interested in the subjects presented for discussion is cordially invited to the open sessions.

At its last meeting, the Academy resolved to invite the sending of an official representative from certain organizations, granting them, upon presentation of their credentials, the privileges of the floor and participation in the discussions at all open sessions. The committee having the preparation of the list of organizations to be invited (college faculties, boards of education, teach-

ers' associations, boards of examiners, etc.) will gladly entertain any request for an invitation to so appoint a delegate. The secretary (who is not a member of the committee) will gladly receive and forward such applications.

Membership in the Academy is open to all reputable physicians, who have an academic degree in course. Application blanks may be had from the secretary.

.

We are pleased to be able to present an article on "Medical Reciprocity" in this number, by that enthusiastic champion of reciprocity, Dr. B. D. Harison, secretary of the board of medical registration in Michigan and of the American Confederation of Reciprocating, Examining and Licensing Medical Boards.

.

Dr. C. W. Sharpless, the secretary of the Washington State Board of Examiners, writes:

I notice in the last issue of your journal on page 76 that you have made an error in regard to the Washington report. About a year ago now, I sent you a report for 1904, containing approximately 185 names. Soon after our January examination, I sent you the report containing 82 names, which I see is the one you have inserted.

Before very long I will get together the report of our July examinations and send you that. I hope that you will make the correction, for we are already getting too many doctors on the Pacific coast.

Regrets do not correct the error, which would require a change in every college table where Washington is mentioned. Fortunately no serious harm is done to the college itself, as the figures are accurate as far as the examinations are concerned, they are simply misplaced chronologically. How the substitution of the reports was made cannot now be explained, and even an explanation would afford no excuse. It is a good example of the "Doctrine of total depravity in inanimate objects." Our only consolation is that such an error is not likely to occur again-

LITERATURE NOTES.

MANUAL OF THE DISEASES OF THE EYE, FOR STUDENTS AND GENERAL PRACTITIONERS. BY CHARLES H. MAY, M.D. Fourth edition, revised, with 360 original illustrations, including 21 plates with 60 colored figures. New York: William Wood & Co. 1905. pp. 400. Price, \$2.00 net.

Dr. May keeps himself well in hand and the volume is ad-

mirably fitted for those for whom it is written. Especially is he to be congratulated upon the colored plates demonstrating external ocular appearances. The eye-gate is an important entrance to the "city of Man Soul," and Dr. May makes good use of it, both in the text and by his illustrations. A general practitioner away from medical centers cannot invest the price of this book to better advantage than by purchasing the volume and acquainting himself with its contents.

DOCTORS OF THE OLD SCHOOL, BEING CURIOSITIES OF MEDICINE AND ANCIENT PRACTISE. Arranged by PORTER DAVIES, M.D. Volume VIII of the Doctor's Recreation Series. Akron, O.: The Saalfeld Publishing Co. 1905. pp. 251. Price, \$2.50.

Again we are indebted to the projector of this series for gathering from far and wide, sketch and essay about the doctor of the old time from Alice Morse Earle's charming description of the New England physician of the 18th Century to Lord Bacon's essay on the Benefits derived from Alchemy. Even should we possess the completed works from which these selections are made, and very few of us do, it is helpful to have them so conveniently at hand and so delightfully clothed. The pessimistic side of one's nature is looking for the break from the standard raised by the volumes already published. It is pleasing to report that, as yet, the pessimist has not had the opportunity to grumble.

THE ERA KEY TO THE U. S. P.; A Complete List of the Drugs and Preparations of the United States Pharmacopoeia. Eighth decennial revision (1905). Vest-pocket size; 83 pages; price 25 cents. The Pharmaceutical Era, Publishers, 90 William St., New York.

The "Thumb-nail" Pharmacopoeia is a conservator of gray matter. For a while the changes in the last revision of the official volume will give rise to doubt in writing a prescription. To be able to have so valuable a work of reference in so convenient form, makes it possible to remove doubts at a moment and anywhere.

Dr. Thomas H. Hawkins retires from editorial control of the *Denver Medical Times*, and the management of the journal has

been undertaken by a stock company. Dr. Arthur Edgen Bonesteel becomes managing editor, with a large and able editorial staff.

We have received a copy of the third edition (1905) of Merck's *Manual of the Materia Medica*. The last edition was published in 1901 and this has been carefully revised and brought up to date. It is small enough to carry in the coat pocket, and it is full enough of valuable information to be kept ready at hand for consultation.

The Annual Reports of the Commissioner of Labor are of greater interest and value than many of the Government reports, for the reason that usually some subject relating to some one subject germane to the official duties of the Commissioner. The 19th Annual Report has recently come to our hands and treats of wages and hours of labor from 1890 to 1903. The investigation necessary to secure this has been under way for several years. The volume affords a valuable gauge in the study of social progress.

The second volume of *Ophthalmology* begins with the October number, and maintains the position occupied in the first volume. The articles are valuable and timely; the abstracts show a wide reading on the part of the editors, and a skill in condensing.

The *Annals of Surgery* possesses the American quality of bigness; it is the thickest monthly among our exchanges, but it also possesses the more valuable quality of excellence. It is a journal that should be taken by every one interested in general surgery.

The *Archives of Physiological Therapy* is another journal that now presents a handsome appearance to the eye and may be included among those journals worthy of mention—space is not at command to continue this list, and it could be continued, as there is growth in the excellence of our medical journals, keeping pace with the other aids to the physician.

BULLETIN

OF THE

American Academy of Medicine.

VOL. VII.

ISSUED DECEMBER, 1905.

No. 4.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or address published in the BULLETIN.

ALTRUISM IN THE MEDICAL PROFESSION.¹

BY WINFIELD S. HALL, Ph.D., M.D., Professor of Physiology, Northwestern University Medical School.

The activities of the lowest living forms may be grouped into two classes: those activities directed toward the nourishment and defense of self; and those activities directed toward the propagation and defense of offspring.

The first law of life is, the preservation of self; but the second and higher law is the preservation of others. Here in the lowest living forms we have foreshadowed the denial of self for another's welfare and the subordination of the individual to the race.

Spencer calls "all those activities which, in the normal course of things, benefit others instead of benefitting self—*Altruism*," and adds, "then from the dawn of life Altruism has been no less essential than *Egoism*." (H. Spencer, "Data of Ethics," Section 75.)

The first manifestation of altruism was the division of the primordial parental cell into the two or more cells of the next generation. With this division was made a complete sacrifice of the parental life which was transmitted, together with the material—protoplasm—which was its basis, to the individuals of the next generation. This sacrifice became a physical necessity as soon as the growth of the organism made it impossible for the surface of the cell to imbibe enough nourishment to satisfy the needs of its increased volume.

¹ President's address before the Thirtieth Annual Meeting of the American Academy of Medicine, Chicago, November 9, 1905.

At this juncture one of two things became necessary: death from starvation; or, *division* into two or more individuals. Here was the parting of the ways: The path of selfishness (egoism) leading to death through malnutrition, the path of sacrifice (altruism) leading to immortality through posterity.

We may sum up the biologist's interpretation of egoism and altruism in the following general principles: (I) All the activities of living organisms may be classified as: *Egoistic*—those that nourish and protect the individual—and *Altruistic*—those that maintain and protect the race. (II) Altruistic activities invariably involve, on the part of the individual, sacrifice of self for the good of the race.

The sociologist accepts these fundamental biological principles and finds that they may be applied without essential modification to the phenomena of human society. He finds, furthermore, that there is manifest in human society a step by step evolution, in which the altruistic impulses and activities gradually gain ascendancy over the egoistic. Maudsley expresses this principle as follows: "The further we go back in civilization the greater is the preponderance which the egoistic impulses have." (Maudsley, "Body and Will," p. 164).

Obedying this law of life, every man stands one day at the parting of the two ways: Shall he choose the way to self-indulgence and self-aggrandizement, or shall he enter upon his life work actuated by a desire to lend a helping hand, to lift up the one who has fallen, and to stimulate and inspire noble endeavor? In brief, shall he be actuated by egoistic or by altruistic impulses, remembering that egoism brings starvation to the higher life, while altruism brings immortality.

Every profession, every occupation in life affords its opportunities for altruism, but he who chooses the medical profession must do so with the knowledge that to be a useful and successful member of that profession, he must subordinate self to the welfare of his fellow men. The true physician is solicitous above all for the patient's welfare, and not only ministers to his immediate needs, but seeks so to instruct him that when restored to health he may, by right living, maintain it continuously, thus needing no further professional service from his physician. This is a

manifestation of altruism so nearly universal in the medical profession that the physician loses caste in his profession if he fails in the discharge of this obligation. The true physician gives no less skilful or faithful service in the house of penury than in the house of wealth, and goes at any hour or in any weather as well to those who can not, as to those who can, remunerate him.

This degree of altruism is common to all true physicians. Furthermore, many give liberally toward the establishment and maintenance of charitable institutions which in turn deprive them of some of their patrons.

A higher degree of altruism is manifested by those who sacrifice a gain commensurate with their abilities in order to inspire, guide and uplift the youth. The work of the true teacher is always altruistic. Why is the teacher so illy paid? Because, all that the teacher gives of himself is beyond price; but if he has nothing to give save instruction, he is worth less than his meager salary. If the teacher were paid what the real teacher is worth, it would make that field of activity so attractive that many would enter it for pecuniary considerations, thus robbing it at once of the best efficiency and of the essential altruism.

The teacher must always take a part of his remuneration in the satisfaction which he derives from the molding of a character, and in the joy which he experiences in the inspiration of lofty ambition.

Notable examples of great teachers in the medical profession are, Hippocrates, Vesalius and Harvey; Sydenham, William Hunter and John Hunter; Müller, Simpson and Stokes; Bichat, Ludwig and Gross.

John Hunter, "the Newton of biology," became famous for his lectures notwithstanding he was so diffident that it was painful for him to appear before an audience. He spent the income which he derived from a large practice for the establishment of a museum, which he left to the city of London. But the greatest work which he did was to guide and inspire such pupils as Jenner, Clive, Ashley Cooper and Abernethy.

Johannes Müller, the founder of experimental physiology, numbered among his pupils: Hemholtz, Virchow, Brücke,

Quincke and DuBois Reymond. Under Müller's masterly demonstrations these men received an impetus which started them into most fruitful fields of research.

Xavier Bichat, the founder of histology, modest, incapable of envy, sympathetic, self-sacrificing and an indefatigable worker, lectured several times a day on anatomy, physiology, histology and pathology; and directed the laboratory work of eighty pupils. Through septicemia he met an untimely death at thirty. It was said of him: "No one else has ever done so many things in so short a time and so well."

Still higher in the scale of altruism must be placed those men who have sacrificed financial gain, comfort, home and friends for the good of the community: (1) in leaving home and friends to carry relief to the suffering, in the capacity, for example, of a medical missionary; (2) in devoting time and energy to the discovery of means which would bring relief to the suffering, but in whose pursuit practice and income must be sacrificed; (3) in giving freely to the world a discovery which, if withheld, might bring wealth.

The free giving to the world of a newly discovered truth has come to be an unwritten law of the profession, and to withhold such a truth causes one to lose caste among scientific men.

Had Jenner chosen to keep his method of vaccination secret, he might have become fabulously rich. So far from doing this, however, he taught all of his fellow practitioners who desired instruction in his method, and he vaccinated all who thronged to him for that purpose. With hundreds daily standing in line at his door waiting their turn for vaccination, his practice suffered so that he was actually impoverished, until Parliament came to the rescue and voted him a competence.

Simpson might have kept secret the nature of the agent (chloroform) with which he produced anaesthesia, and by that means might have secured great pecuniary advantages. But Simpson made public demonstrations of chloroform anaesthesia, and through his writings spread far and wide the name and nature of this wonderful, new substance and taught many practitioners in his Edinburgh clinics the method of its use in surgery and in obstetrics, particularly in the latter field of practice. At first

the profession was charmed and the laity delighted. Then some within the profession began dogmatically to state that operations under chloroform anaesthesia were attended by a greater mortality than were those without such anaesthesia. Further, some of the laity discovered that as "pain was a part of God's plan it was impious and sacrilegious to attempt to make one unconscious of it." To the objections within the profession Simpson had only to cite the statistics of the hospitals of England, Scotland and the Continent, to prove that on the contrary operations under anaesthesia showed only one-half the per cent. of deaths shown by the other method. To those who objected on theological grounds Simpson simply cited the first surgical operation on record. "And the Lord God caused a deep sleep to fall upon Adam, and he slept; and God took one of his ribs, and closed up the flesh instead thereof" (Gen. ii, 21). After this the theologians held their peace. Simpson was always ready to sacrifice for others. He was a great and wise teacher and a skilful practitioner who numbered among his patients thousands of the humble cotters of his native land as well as many of the nobility, and received from Queen Victoria the appointment as "Physician Accoucher to the Queen." He lived to see chloroform in general use and to hear all the world blessing his name. When Simpson died, 30,000 people flocked to Edinburgh to do honor to his name.

Von Behring, who isolated diphtheritic antitoxin and demonstrated its immunizing action against diphtheria, gave his discovery freely to the world. There are to-day, thousands living who but for antitoxin would have fallen victims to that dreaded disease—diphtheria.

A small number have manifested a yet higher order of altruism and, receiving from those who held to the accepted dogma, opprobrium and odium, have sacrificed personal prestige and professional standing in order that truth might be established, suffering alleviated, and lives saved.

Vesalius, in daring to question the infallibility of Galen's dicta, and to dispute the accepted theories, came into disrepute among his confrères, but he laid the foundations of modern anatomy. Later his work was accepted by the scientific world and he was made physician to his King (Charles V).

Servetus sacrificed reputation and standing at the hands of religious leaders because he taught that the blood circulates through the lungs, which teaching was not acceptable to the men of his time.

Barnardo, of London, whose recent death has brought his deeds before the public, gave talents, which would have made him famous in his profession, to the waifs and strays. After forty years of this work, carried on through a large part of that period amid the jeers of the populace and the jibes of the profession, he had taken 50,000 children from the gutters and made it possible for them to become useful, self-supporting, self-respecting citizens, leaving the great work well organized, well endowed and well-administered. Through a life of unrelenting toil and self-sacrifice, doing a work that was for years unpopular, Barnardo won a fame that will be undying, and a name that will be immortal.

While the lowest order of altruism is practised by all true physicians, we note that as we study the successive higher orders of altruism we find progressively fewer and fewer physicians attaining to these higher orders. One might say that the higher the order of altruism the fewer there are that attain to it.

Voluntary sacrifice of life in order that other lives may be saved is the highest order of altruism. This height of sacrifice has been attained by a comparatively small number only; a number, however, that should include the names of many unknown heroes who have gone to their death while ministering to the sick in plague-stricken places, leaving no record of their heroism.

Sydenham, although he possessed a feeble constitution, went to plague-stricken London and devoted himself to the efficient relief of the victims at the risk of his own life (Rush, Lectures, p. 61). We recognize in Sydenham also the elements of a great teacher and the heroism of the independent investigator who, out of harmony with the accepted dogma, brings disapprobation upon himself in order to establish truth.

Benjamin Rush, who had reached a point in statesmanship which afforded him the distinction of signing the Declaration of Independence, gave up all thought of political preferment to follow his profession. He went into the terrible yellow fever

epidemic (1793) of Philadelphia, and by his untiring effort, his skill and his wisdom, fought successfully against the disease. Besides rising to the sublime heights of altruism in his fight against yellow fever, Rush was a master teacher, a sympathetic, and self-sacrificing physician, and a loyal patriot. He has been called the "American Galen."

Lazear, a recognized teacher of clinical microscopy, left this field of altruistic service to go to Cuba and study the yellow fever problem. In the discharge of this work he exposed himself constantly to the disease, immensely aiding in its treatment and in the prevention of its spread; but voluntarily sacrificing his life in order to gain a knowledge which has put into the hands of the State and the medical profession a means of checking the further spread of this dreaded disease, thus saving unnumbered thousands of lives.

In these examples of altruism we find many who have struck a single note of the scale, a few who have struck a chord, but there remains yet one who ran the gamut of altruism—"The Great Physician," Jesus of Nazareth, who healed the sick and cured the blind, who left his home to become an unpaid teacher, who suffered obloquy to establish truth, which truth should make man free, and who at last suffered death that others might have life.

The examples that have been cited from the ranks of the medical profession and covering a period from the founding of the profession to the present time, have been chosen with respect solely to their altruism, but this list does not by any means cover the field of men, prominent in the profession, whose lives were actuated by the spirit of altruism. If this list were made complete, we would find that it included nearly every prominent physician from Hippocrates to the present day.

The significance of this fact must be apparent. *Enduring fame in the profession can be won through altruism only.*

If fame rests upon altruism, then will such names as William Stokes, Samuel Gross and Nathan Davis—names which are so prominent before us now—have a fame which will endure through the ages.

William Stokes took the first lessons in sacrifice under his

teacher, Allison, of Edinburgh, with whom he made nightly rounds among the poor of that city, ministering to their ills. He received his degree in 1825 and returned to his native Dublin, where he devoted a half century of unprecedented activity to his profession, being recognized through a large part of that time as the leading exponent of internal medicine in the world. He was an inimitable teacher, ready to make any sacrifice for the advancement of truth and the elevation and unity of the profession.

Samuel Gross (1805-1889), the greatest surgeon of his time in America, devoted colossal energies to the development of surgery "for the alleviation of human suffering and the prolongation of human life." He knew no limit of self-sacrifice and was sincerely loved by his pupils, his patients and the profession.

Nathan Davis, whose eulogies have so recently been pronounced in this city, devoted more than half a century of unflagging self-denial to his profession. He inspired his pupils to high ideals; he freely served the poor at the expense of time and strength. He raised the standards of medical education and organized, or helped to organize, some of the most successful medical and other scientific societies.

These men were actuated by one fundamental principle: *Sacrifice of self for others, and their names will have enduring fame.*

* * * * *

Organized for the purpose of advancing the standards of medical education, of advancing the boundaries of medical science, of elevating the profession and of preventing disease, the work of the American Academy of Medicine has been altruistic from the time of its organization to the present. The field of its activities are ever widening, and always along altruistic lines.

If I were asked to make a general recommendation it would be *that the Academy accept as its field of endeavor the altruistic responsibilities and activities of the medical profession, definitely outlining a program of research to be prosecuted along the various lines (education, school hygiene, state medicine, ethics), this research to be followed by carefully directed and persistent effort to accomplish that which the research reveals to be advantageous to society.*

REPORT OF THE COMMITTEE ON THE LAWS REGULATING THE PRACTICE OF MEDICINE.¹

BY CHARLES MCINTIRE, A.M., M.D., Easton, Pa.

Your committee, presuming upon your good nature, has already published the information gathered regarding medical laws and their workings for 1904. Copy was needed for the August and October Bulletins and, should we meet in June in 1906, the papers of this meeting will crowd the pages of the numbers published between the meetings.

At the meeting of the Academy in Providence, R. I., September 28, 1880, Dr. J. S. Billings offered the following which was adopted:

Resolved, That the Council be requested to present at the next regular meeting of the Academy a collection of the laws relating to the practice of medicine now in force in the several states and in the Dominion, with a digest of the same.

In compliance with this resolution, the Council appointed Drs. Marcy and Duglison on the committee, and this was the beginning of the Academy's interest in medical legislation. Some phase of the subject has been presented and discussed at almost every meeting since that time. It may not be out of place after these twenty-five years of study, for the Academy to discuss some of the general principles desirable to be observed in medical legislation. This addition to the usual report is presented that it give occasion, to borrow Lord Bacon's phrase.

That there has been progress in the twenty-five years, none can gainsay; that the present condition is far from perfect, all will admit. Let us look at some of the imperfections in the present laws, determine the cause and discuss their bettering.

There is one imperfection which is to be found in most of our legislation. There is a lack of uniformity in the provisions in various states. Whether actuated by an inner desire for independent thought, or influenced by motives originating from without, there seems to be a desire on the part of the legislatures of the various states to present an infinite variety upon any one subject. The divorce laws of the various states illustrate this. The Bar Associations of the land have been engaged for a long

¹ Presented to the American Academy of Medicine, at Chicago, November 9, 1905.

time in an effort to harmonize and unify many of the laws, with some success. In time this may be accomplished for medical legislation, but certain other imperfections should be removed first.

Probably the most unsatisfactory provisions of any of the existing medical laws are the sections devoted to vagarious practice. Under the existing state of society and with public opinion as it is, your committee thinks that it would be better for medical practice acts to recognize two grades of practisers. There is not a state which does not permit it, either by special legislation, by exemption clauses in the medical practice act, or by sufferance. Thus many states make special provision for osteopathy; others give special freedom to psychopaths. It would be better to acknowledge the presence of these in our midst and to provide for them in the general practice act.

The authority of any practice act is an exercise of police power whereby the state has the right to define the conditions by which it undertakes to protect the citizens in their lives, liberty and pursuit of happiness. If the legislature attempts to do this for the benefit of all, the result will be apt to be better adapted for its purpose than when certain classes of people are seeking special privileges under legal protection.

It seems to be fair that any one asking the privilege to professionally care for the ills of humanity by any process whatever should be required to give evidence to the state of a moderate knowledge of (1) the structure of the body, or anatomy; (2) of the functions of the body in health, or physiology; (3) of morbid manifestation of structure or function, or pathology; (4) of the evidences of morbid action or symptomatology or diagnosis; and (5) of the general rules governing the health of communities, or sanitary science. Every one, no matter what means of cure they desire to employ, should be required to pass the examination on these subjects and be called, let us say: Limited Licentiates in Medicine, with a penalty, including the revoking of the license if every method by which they present themselves to the public—whether card, sign or advertisement—does not properly specify the character of their license. There should be examinations in no other subjects than these permitted except to those who

wished to qualify as practisers of scientific medicine, to whom alone the title of "Doctor" could be legally applied.

Of course, the pure psychopath would insist that such knowledge is not necessary for his particular line of treatment, to which reply could be made: That until it was demonstrated that his method of treatment was always efficacious; or, at least, that none of his failures could have been benefited to the slightest degree by other methods of treatment, this knowledge, while not necessary for him to carry on his practice, was necessary for the safety of the people that he might be able the better to decide the class of ailments most likely to be amenable to his processes. Should the law of the future provide for all odd isms and pathies in this general way, the result will be an improvement upon the present conditions.

Another imperfection in the laws is the direct result of the insincerity of medical schools. It is deplorable that such a statement must be made. Your committee wishes to be careful in its statement, indulging neither in broad generalities nor in bringing charges against any particular schools. Much of the opposition of the medical schools to the advances in medical education was due to the personal financial interest in the school of the members of the faculty and the limitation of their facilities. The forward movement means personal loss, perhaps financial ruin. In many instances the effort has been to grow toward the standard as fast as possible, in the meantime hiding the weaknesses known by the faculties more thoroughly than by any one else. The policy has been one of expediency and expectancy; conditions which can cause, and unconsciously so, a policy of deception. While this gives a reason and may explain the motive, the fact remains, that medical colleges—the committee would not say many or few—have endeavored to evade the provisions of the law, and constantly. Thus, not long ago a member of a board of state medical examiners wrote your committee that its investigations had shown that the authorities of every medical school in the state, save one, was attempting to evade the provisions of the law, and there are more than two colleges in the state. And a confidential talk with a member of the faculty of one of our larger schools in a state by no means contiguous to the

one last mentioned, revealed the little subterfuges of his school to make it appear that the length of the term satisfied the requirements of certain laws, without any actual increase in the length of time in imparting instruction.

This policy of some medical schools has caused the strict defining of the medical course in the practice acts, resulting in a somewhat mechanical and almost arbitrary test. Why should not the University of Michigan, for example, be permitted to determine whether the student wishing to enter the medical department, had a sufficient knowledge of the subjects of the first year to enter as an advanced student, regardless of the place where he had acquired the information. He would thus secure his degree after three years' residence and would not be able to practise in Minnesota, for example. Simply because some schools would not exercise the same care and yield to the temptation of giving advanced standing to those who were not prepared.

Hence it is that many of the present laws do not regard the various corporations forming the medical schools as honorable bodies but rather as combinations requiring watching. It will be an improvement when the colleges will be given a chance to be placed on their honor, and a degree be accepted for its face value. In the light of past events, it is too much to ask that this be done without any safeguards. Of these, two may be mentioned.

I. Require a certificate from the college that the holder of the diploma pursued a course meeting the requirements of the laws of the state where the applicant desires to practise, not of the state where the college is situated, as the conditions may differ. This will prevent students attempting examinations for which they were not prepared. In a letter received not long ago, the dean of a medical school laments the fact that certain of their students persist in attempting to pass certain examinations against the advice of the faculty, because the board's standard is higher than that of the college. As a consequence more failures are recorded against them by the State examinations, than they would have if the advice were heeded.

II. Many of the laws adopted at one time or another gives the power to the board to determine the college whose diploma will be accepted. By giving this power to the boards, a penalty could

be imposed upon those colleges that furnished too large a per cent. of failures. For example, in the Review of Ten Years' Work of a Board of Medical Examiners, published in the Bulletin of the American Academy of Medicine in August, 1904, there were several colleges whose per cent. of failures for the period was 50 or more. If the board had the power to publish that graduates of this college would not be permitted to come up for examination a period of years, three or more, that college would have an incentive for better work. Whether it would be *vis a tergo*, or *vis a fronte*, depends on how you look at it.

These may be crude expedients, but the laws will be far more ideal if there could be a mutual understanding and confidence between the boards and the individual schools.

Another question concerns the migration of physicians. This very autumn, a graduate of the University of Pennsylvania of the class of 1874, and a native of Pennsylvania, but who left the State shortly after his graduation, wished to return to his boyhood home and associate himself in practice with his brother, who had succeeded their father in practice. To do this, he must come up before the board of examiners, pass an examination prepared for men graduating 30 years after his diploma was given him. There is nothing unusual in this statement, and it is one which time will correct in a measure. Possibly no provision need be made for this type of doctor, as it will not be long before all who practise will possess a license after a state examination. It might be said that the Confederation of Reciprocating Licensing Boards makes provisions for this class in one of their rules. But some provision should be made for the old practiser who possesses the state license. Your committee thinks that this provision should be freed from the necessity of a mutual exchange of courtesies or reciprocity. If reciprocity can be arranged, it is commendable, but do not make the law depend upon it. Give the board power to accept the license issued by another state at its true value. If it be not worth as much as the law requires, supplement it by the proper tests; if he meet these, then grant him the needed certificate. One subject of investigation, when a graduate of some years' practice seeks to begin practice in another state, is the manner of his professional life in his old field.

The New Jersey Board is to be commended for its practice hitherto, and it is to be regretted that it has resolved not to recognize the license of New York; not because the license of New York does not come up to its standard, but as an act of retaliation.

There are some whose licenses are not equivalent who yet may be worthy, and the law ought to provide for such. Thus, it would work no harm to the citizens of any state to permit a physician of reputable habits and years of experience to be licensed upon other evidence than an examination. For example: Any physician of not less than ten years' practice, whose professional history shows that he is neither an itinerant nor an incompetent forced to wander in the vain hope of finding success, could appear before the board, and convincing it that he had a legal right to practise at his previous location, had complied with the ordinary rules for respectable practice and had a valid reason for this proposed change, and that he was fairly informed, and be given a license on his record.

It is claimed, and fairly, that medical practice acts have raised the standard of the American physician, which is but another way of stating that these laws require special skill on the part of those licensed. Because it does so, it should be careful to protect them from the unlicensed and the irregular. The law should provide for a strict supervision of the profession in the state, and an efficient means to check practice by the unlicensed or disreputable methods by those who are licensed. This should be the duty of some one official duly appointed and duly compensated. It is not only the health of the people that demands this, but its wealth as well. Quite recently in Pennsylvania, two men who had been following the method of the advertiser, were arrested on a criminal complaint. One was convicted. He left for green fields and pastures new, forfeiting his bail. A Trust Company was on the bail bond to the amount of \$2,000 for each, which sum had been deposited by the defendants with the bank. A reporter of a local newspaper, speaking of his flight, said that he was seen to have a large roll of bills the day before. Is it not reasonable to suppose that most of this money was the result of their disreputable methods, duping the people? The

salary of an efficient supervisor would result in a saving to the citizens. The execution of the law in Kentucky is the only one known to your committee which has been fairly successful in this effort. Several states have had court decisions aiding the work and the way is opened to be classed with Kentucky.

Keeping these points in mind, the effort should be constantly to make the laws uniform in the various states. It is not the province of this report to enumerate the qualifications to be insisted upon. No less than three sets of men are now engaged upon these. As each is fully capable there need be no fear as to the results of the deliberations. A fair uniform standard will be formulated in the near future that can be safely adopted in every state.

The effort in many of the acts to define the practice of medicine concisely and in such a manner as to provide no loophole for the most astute schemer to creep through with some ideation—a new Minerva alike the only original only in this: That her place of genesis is a brain, but alas! either of a deluded or a deluder. If some sufficient definition could be coined to be so clear and conclusive as to hedge about the wild wanderings of many of our judges, its author should be hailed as a benefactor.

Your committee is aware that an ideal law is beyond our reach while legislatures remain as they are, and charlatans have the power to retain a lobby. At the same time it feels that a discussion of the points suggested may be helpful in coördinating the expressed claims of the profession, so that public opinion will be properly guided as it awakes to the fact that medical practice acts concern the welfare of the patient more than prosperity of the physician.

DISCUSSION.

Dr. Leartus Connor, of Detroit:

There are two parties in the origin of these laws; one, the people; the other, the doctors. When doctors become too many for the patients, they become pinched and want protection from some who know as much as they, and many who do not. The doctors themselves cannot effect any laws. The people without the doctors can effect the laws, but generally the doctors have been active in the formation of these laws, and on the whole with a selfish idea. If every doctor from the foundation of the republic had looked after the interest of the people rather than his own interest first, there would not have been the necessity for any law.

The object of the Academy is to study these questions so that doctors and others shall know and do the things that will promote the well-being of all. The only way to get ahead is to work. We have boards of examiners, engineering doctors; we have osteopaths and Christian Scientists, that call themselves doctors; and we are in the lot. It is for us to show that we are something better than they—that we are not working for ourselves personally, but working for the good of the community first, and ourselves with them: not at the expense of the rest, but with a community of interest. My belief is that medical laws will be effective in so far as they secure that support; and ineffective just as they fall out of that support.

I have been doing what I could, and my friends in the Academy have been doing what they could and our friends elsewhere have also been active, and we are sized up by the self-seeking doctor as fools. The weakness of medical laws is in the influence of the self-seeker, and when ways are found to remove that weakness, we shall have effective medical laws.

Dr. B. D. Harison, of Sault Ste. Marie, Michigan:

I congratulate the committee upon the report. I can agree with a great deal of it—in fact with the main part of the report. I think that one or two points have been discussed that perhaps I do not agree with. The first point in the report was to the effect that osteopaths should be admitted as members of the state board and recognized thereby as members of the medical profession. I think the principle involved prevents medical men from making any agreement whatsoever with a condition of that kind. A medical man or the medical profession cannot afford to recognize in any form whatever a "fake" such as osteopathy, which is founded upon a "fake" condition, and is acknowledged even by themselves to be a "fake" in fact.

Some years ago I had occasion to examine a college for recognition. This college holds out the inducement that it graduates students from all schools of medicine, the regular, homeopathic, eclectic, physio-medical and osteopathic schools. I was asked by the members of the Wisconsin Board to inspect this school with them, and I went over it with them and the dean of the school. After the inspection proper we were shown the system of book-keeping, which included keeping track of the lectures, clinical and other attendance. The dean was asked who taught anatomy in the school, and it was stated that the professor of anatomy was a regular graduate and that the assistants were homeopaths or eclectics. He was then asked if all the anatomy taught in the school, including demonstrations, was had from these men, and he replied that it was. He was then asked if the osteopathic students obtained their anatomical knowledge, in whole or in part, from the regular teachers, whether regular, homeopathic or eclectic, and the answer was that osteopaths obtained all their knowledge in anatomy from these men, and that the college had no osteopathic anatomist. He was then asked if it were possible for an osteopathic student to obtain from a regular graduate a demonstration of dislocations and misplacements of vertebrae, of nerves or of muscles, in accordance with the theories involved in supposed oste-

opathy. The answer was that all the knowledge of anatomy obtained was from the regular men, and that if they got demonstrations as above it would certainly have to come from these men.

In a suit in the supreme court of Kentucky the decision given was that osteopathy was massage and that the osteopath was a masseur, and that massage constituted the practice of medicine in law. It follows, then, that when osteopaths go to a state legislature for an act and ask for a board, that they are asking for a separate board to practise medicine and surgery. It may not be possible to prevent them from obtaining this board, but medical boards have no right or reason to have anything to do with osteopaths or any other suggestive systems. In Michigan the osteopaths went before the legislature and asked to be represented by a member on the medical board. This request was absolutely refused. The board informed the legislature that they would go out of existence rather than sacrifice the principle involved in the question; that if it wished to put the board out of existence all it had to do was to make an osteopath a member of it. The board would not consent to tie up to osteopathy in this method as a matter of principle. The board was asked if it would consent to allow the osteopaths to have a separate board. The board could not prevent this, but insisted that if the osteopaths were permitted to have an act and a board, and in connection therewith permitted to practise what is called osteopathy, then there must be a proviso in the osteopathic act stating that osteopaths were not empowered under this act to practise medicine or surgery within the meaning of the medical act.

While they have an osteopathic act and board in Michigan, such act specifically requires as follows:

"The certificate provided for in Section 2 of this act shall entitle the holder thereof to practise osteopathy in the State of Michigan, but it shall not authorize him to practise medicine and surgery within the meaning of (medical) act number 237 of the public acts of 1899 or acts amendatory thereto."

It will, therefore, be seen that under their act they are not permitted to practise medicine or surgery under or with the endorsement of the medical act. They are in fact practising under an unconstitutional act. Their own act states that they cannot practise medicine, but are permitted to practise osteopathy, and the supreme courts in more than one state have decided that osteopathy is in fact the practice of medicine.

Under such acts let them work out their own salvation or damnation. In my opinion it is only a question of time before they will go out of existence. I, therefore, do not agree with the report inasmuch as it conveys the impression that osteopaths should be admitted, even indirectly, as a member of the medical board and the medical profession. This would practically place the medical profession in the position of recognizing some merit in the so-called osteopathic system.

The report also took up the question of requiring the older medical men, who graduated from reputable medical schools some years ago, upon change of location to go before a state board for examination.

In some instance it would not be possible for men of this kind to qualify for admittance to a state board examination. Many acts require a four years' course of eight months in each separate year. These men graduated from schools twenty-five years ago upon a course of two years, therefore they cannot comply with the four years' course, and further cannot comply with a great many other conditions of present requirements; and therefore they cannot even qualify for admittance to the examination; they are simply unrecognized.

Every medical act should contain a proviso that the act should not apply to those graduates of reputable colleges who have graduated previous to the date of the act. I think the Michigan medical act is one of the few acts that recognizes the standing of a man at the time of his graduation; that is, if he graduated from a reputable college, or in fact a reputable college at the date of his graduation. This point in the law is represented perhaps by the following resolution passed by the Michigan Board in regard to reciprocity:

"If an applicant for the reciprocal endorsement of a certificate of medical registration or license has acquired such certificate or license in another state, territory, district or province of the United States in medical reciprocity with Michigan under conditions and requirements equivalent at the date of issue to those with which he would have had to comply subsequent to September 22nd, 1883, in order to have then obtained the legal right to practise medicine and surgery in Michigan, such certificate or license may be recognized and endorsed by this board as a sufficient qualification for reciprocity under Section 3, Subdivision Third of the act No. 191 of the Public acts of 1903, provided that such applicant shall further comply with the rules and regulations of this board relative to the recognition and exchange of certificates or licenses between states."

This brings it down to an equitable basis. A man from Bellevue twenty or thirty years ago who graduated with a two years' course and has obtained a legal right to practise in the state, would, if compelled to have an exact standard of twenty years later, be subject to a retroactive law. The man who graduated last year would have no legal advantage over the man who graduated twenty years ago. This point is usually overlooked in medical acts, and I believe that a law which does not make a legal provision for the man who graduated twenty years ago is unconstitutional. No state legislature has the right to take away these previous legal rights.

It is, of course, regrettable that under the constitution it is impossible to have a national board on account of the police powers possessed by the different states. This defect, however, can in a large measure be overcome through a confederation of state boards, and has, to a large extent, overcome many problems seemingly at one time impossible of solution as in the instance of

the question of reciprocity having been made not only possible, but practical through the American Confederation of Reciprocating, Examining and Licensing Medical Boards. This Confederation has not only accomplished actual reciprocity between states, but has also done much toward the cause of uniformity of requirements in the different states.

Dr. R. O. Beard, of Minneapolis, Minnesota:

Mr. President and Members of the Academy.—I am honored in the opportunity to extend to the American Academy of Medicine the greetings of the University of Minnesota, and the University is honored by the invitation to be present, through her representative, at the meeting of the Academy. The Department of Medicine of the University is striving to put into practice the educational principles for which the Academy of Medicine has always stood. It looks confidently forward to the time when a baccalaureate degree will be required for entrance to the study of medicine. When that good time comes, and I believe it will not be far distant, the University of Minnesota, with many other schools, will gratefully acknowledge that toward the attainment of that goal, the American Academy of Medicine has blazed the way.

I refer to this side of the question under discussion, the educational side of the regulation of medical practice, because it seems to me, at the present time, of vastly greater significance than attaches to merely legislative methods. The true reason of being for the laws which are supposed to regulate the practice of medicine, and largely do not, these are intended to protect the public from the pretensions of osteopathy, neuropathy, chiropratics and Christian Science, and usually fail, is the general unfitness in the past and largely in the present of the American medical profession—it is the undeniable fact that we have let ourselves down so low that we are on the plane of that sort of competition. Elevate the standards of medical education, raise the many in practice up to the level of the present fitness of the few, and we shall not need medical legislation so much; we shall not fear the competition of the charlatan and the fanatic, because we shall have risen above it.

Dealing with the problems of medical education and medical legislation, as I have for many years, I have often been tempted to the view taken by the great State of Massachusetts in her persistent refusal to enact any medical legislation whatsoever. Her attitude has been a scientific one. "This is a matter of evolution; let the fittest survive." Better no law than one which fails of its enforcement and therefore of its purpose. The fittest will survive and when the medical profession of America shall have attained to a really high standard of preliminary education and professional fitness, it will not be long before its unfit competitors will disappear. When the public no longer needs to be safeguarded from the true practitioner of medicine, the so-called systems of healing will be readily restricted by state law.

But so long as the regulation of medical practice remains, the legislative side of the question is a difficult one. The difficulty lies in our lack of organization. We are not practical politicians. It is true of the medical

profession that, as the Master said in olden time, "the children of this world are wiser in their generation than the children of light." We have not known how to handle legislation and the commercial schools of practice have. As a practical point, I am not in accord with the view just now expressed that we should not meet osteopathic legislation by the offer to the osteopaths of places upon our state boards of medical examiners. If we were competent to defeat the legalization of osteopathy, well and good. But we have not so proved ourselves. Better one or two osteopaths on a state board, where the mischief they work can be checked by a working majority, than a separate low standard board of osteopathic examiners. Minnesota has had her experience in this matter. Six years ago, the osteopaths introduced their practice act into the State legislature. They expected we would fight them as fakirs. They lined up their witnesses of established cure. We called them no names. We admitted their evidence before it was presented. We invited them in and offered to qualify them by the same tests as we qualified other practitioners upon. We tendered them places on our state board and presented an amendment of our practice act to that effect. They did not want to accept the invitation. That defeated their law and they, in turn, defeated the amendment of ours. Two years later, they came in again with a practice act. They were otherwise fought and they won. The profession took high ground and was beaten.

While I am discussing this subject, I want to refer to another educational phase of it, with respect to which Minnesota has taken an initiative which has been the subject of some criticism. I refer to the decision of the Minnesota Board not to accept academic courses in lieu of medical courses in the fundamental sciences. While we recognize the premedical value of the academic courses, we believe that they are not at the present time of sufficient uniformity and adequate range to substitute the work in the department of medicine. Further, we believe that these foundation branches should be taught essentially from the human standpoint and with direct and constant application to the practice of medicine. Therefore we hold that they should be taught to medical students always, by medical teachers. Our experience, for many years, with students who have come to us from academic courses, has taught us the soundness of this view.

I am very glad that, in the face of the urgency of a committee which visited Minnesota from the Chicago medical institutions, the Minnesota Board has "stood pat" upon this question.

Prof. Charles R. Bardeen, of the University of Wisconsin:

The rule of the Minnesota Board of Medical Examiners that they will refuse to examine for license to practise *all* graduates of a medical school which gives time credit to any of its students for work done elsewhere than in a medical school seems to me manifestly unjust. In a number of universities adequate facilities can readily be furnished for study of the sciences which constitute the basis of the first one or two years of work in a medical school and yet want of proper clinical facilities debar these institutions from offer-

ing a complete medical course. Thus, for instance, at the University of Wisconsin there have been established departments of bacteriology and of anatomy in which courses fully the equivalent of those offered in the better medical schools are given in medical bacteriology in human anatomy, histology, neurology and embryology. Next year a department of physiology and physiological chemistry will be established on the same basis. We shall then be able to offer the complete equivalent of the first year of a standard medical curriculum. By adding pharmacology and pathology, as we hope to do in the near future, we could offer the first two years of a medical curriculum. Now if a student who should take work of this character with us were to be given credit for such work at a medical school to which the student might go to complete his course, such a medical school would be at once black-listed by the Minnesota Board and all of its graduates refused the right to acquire a license to practise in Minnesota. Such a ruling is clearly unfair. In a number of institutions unable to give clinical work "medical schools" have been organized to offer the first year or two of a medical curriculum. The objection to a recognition of the students work is thus overcome without the nature of the work being essentially altered. Yet a medical school without a chair of medicine is an absurdity.

It seems to me that the extent of time spent in preparation for medicine, the facilities for study and the quality of the teaching, not the mere technicality of the term "medical school" should be taken into account in determining a candidate's fitness. And even if the Minnesota Board should deem it unwise to admit to practise a man who had studied the basal sciences of medicine in the scientific departments of a university, it is still manifestly unfair to deprive him of the right to complete his medical training in due season by threats of blacklisting any institution willing, after examination, to give such a student credit for work accomplished. Students admitted to the study of the basal sciences of medicine at Wisconsin must first have had two or three years training in preliminary college work. It is a state-supported institution. There is no charge for tuition and the incidental fees are small. The student is thus enabled to devote more time than he otherwise might to a thorough preliminary scientific training for medicine. The Minnesota Board should encourage, not discourage, this step toward the advance of medical education in America.

Prof. Burton D. Myers, of Indiana University:

I would like to call attention to a still further phase of this problem, and that is that men who, because they are working in medical schools, would presumably receive credit for their work in Minnesota, are in many instances doing work far inferior to the work done in certain university laboratories not recognized by Minnesota because not organized as part of a medical school. I have a case in mind where superior work under the direction of a Doctor of Medicine, one of the ablest anatomists in America, is being refused recognition by Minnesota because it does not bear the stamp of a medical school. It is the work done and not where it is done that should count.

Prof. James G. Needham, of Lake Forest College:

I do not agree with Dr. Dodson that such a law as this will put an end to the independent college. It will, of course, cut out the attendance of prospective physicians who may wish to practise in Minnesota, if generally adopted, all, who wish to shorten their period of study. But there are others besides physicians to be educated, and there doubtless will be many physicians in the future who will prefer a college course as a basis for their professional studies, as many have preferred in the past—witness the training of attendants at this meeting. In my eight years at Lake Forest College, with a number of premedical students in my department every year, I have known of but one man to leave the college before graduation in order to shorten his course. The survival of the college will depend on its fitness for public service, as manifested in the efficiency of the training it affords. After some observation of work in various colleges and medical schools, I have no hesitation in saying that general science courses, biology, chemistry, physics, embryology, comparative anatomy, etc., are to-day given much better in the college, where they are the main interest of the best men in their several departments, than in the average medical school, where given by men whose main interest are in more special subjects. I am sorry that the Minnesota Board did not see fit to "stand pat" on proper educational requirements rather than upon a technicality of their business.

Dr. R. O. Beard, of Minneapolis, Minnesota:

I had no idea that the discussion of the attitude of the Minnesota Board upon the question of academic equivalents, would have aroused such a hornet's nest of opinion. Perhaps I may be permitted, without trenching upon the privileges of a guest, a word in reply to the many criticisms that have been offered. The legality of the ruling of the Board has been raised. Let me say that the Board has safeguarded its position by a written opinion of the State's attorney-general, who advises the Board that no other construction of the Minnesota law is sound. My friend, Doctor Dodson, has cited the cases of two Chicago graduates, one of whom was refused examination by the State Board because he had been given advanced standing on his academic equivalents; the other of whom was admitted to examination because he had had the foresight to matriculate in the medical department of the Chicago University at the beginning of his senior academic year. Let me revise that statement by adding that the latter was more than a matriculant in medicine and the former was less. The latter had not only matriculated in medicine, but he had elected the courses in medicine, as a contribution to his academic degree, in his senior year in the academic department. The other had not.

We believe that this whole question is covered, and that the controversy may be ended, by the general adoption of the six or seven years' course for the baccalaureate and medical degrees, in which the senior academic can elect the courses in the first year in the medical departments as a contribution to both degrees. We advocate this election because we believe in the cultural value of the fundamental sciences in medicine. We require their

election in the department of medicine because we believe that they can be best taught there. We refuse to reverse the election, in favor of the academic courses, in some of these sciences, because while in some institutions they are mainly equivalent, in most they are very far from it. In answer to the plea which has been made in behalf of the small college, without a department of medicine or in affiliation with none, it is purely a question, is it not, of the ultimate survival of the fit? It is the very inadequacy of the courses in the smaller, as well as in some of the larger colleges, which has prompted the action of the Minnesota Board.

Dr. Charles McIntire, of Easton, Pa., in closing:

I am very glad the report has received so much commendation as it has.

That part of the report of the committee in regard to the limiting of those people who have not full instruction in medicine and practise the various *isms* is formulated not to suggest an ideal but because the thing is recognized in the different states at present, and the proposed plan seems to be an improvement.

The question regarding the Minnesota law has been so fully discussed that the only thing I would like to emphasize is that which was brought out by Dr. Dodson that, if we do not recognize a college giving elementary studies in medicine, you will ruin all the small colleges throughout the country. In my own state the University of Pennsylvania and the Western University of Pennsylvania are the only institutions that have that opportunity.

TRANSACTIONS.

ASSEMBLY ROOM, NORTHWESTERN UNIV. BLDG.,

CHICAGO, November 9, 1905.

The thirtieth annual meeting of the American Academy of Medicine was called to order by the president, Dr. Winfield S. Hall, of Chicago, at 10.00 A.M., the Academy sitting in executive session.

The minutes of the 29th annual meeting were read and approved. The annual report of the Council was presented to the Academy and read by the secretary, and is as follows:

At the first meeting of the present Council, held at Atlantic City immediately after the adjournment of the Academy, the place for the present meeting was discussed resulting in the appointment of a committee to select a place. When the American Medical Association selected Portland for its meeting, it was thought unwise to select Portland for our meeting place, as we had but two members in all the Northwest. The plan was suggested of holding our meeting in Chicago at such a time that it could be attended by our eastern members on their way to Portland. Then came the postponement of the date of the Association meeting, which would have required our meeting to have been held on the 4th or 5th of July, and this plan was abandoned. Finally, Chicago was selected at a date sufficiently late not to interfere with the fall meetings of the various State societies.

The wisdom of not selecting Portland was afterwards demonstrated. Less than 25 Fellows of the Academy were registered at the Portland meeting of the Association, and many of these were on the special excursion trains that did not reach Portland in time for the meeting.

The Council wishes to commend the efficiency of the committees at work preparing for this meeting. The Committee of Arrangements, as will be seen by referring to the program, is much larger and more thoroughly organized than usual. It has been actively engaged, relieving the Council's executive office of many items usually performed by it. The Committee on Program consists of one active and two *ex-officio* members. There was no necessity for the *ex-officio* members to take any effort, and the credit for the excellent program should be given to the chairman.

The Council reiterates its urging of a year ago that special effort be continued to increase our membership, until the income from dues alone will meet the expenses including publishing the Bulletin. Then it can be furnished to every Fellow without an additional subscription, bringing us more into harmony with the custom of most scientific societies. Of course this effort should not contemplate the lowering of our requirements in any way.

In May last, Dr. W. S. Magill, a Fellow of the Academy formerly of New York, now residing in Berlin, requested credentials to the International

Congress of Tuberculosis to be held in Paris on October 2nd to 7th. By correspondence, a majority vote of the members of the Council was obtained and the credentials were sent to Dr. Magill.

Later in the year, the Trustees and Faculties of the University of Illinois invited the Academy to send one or more delegates to the installation of President James on the 18th and 19th of October. Again by correspondence, the Council elected Dr. Winfield S. Hall, the president, and Dr. Charles McIntire, the secretary, as its representatives. It might be well for the Academy to formulate some regulations regarding the issuing of credentials.

The following have been starred on our catalogue during the year. Some of them should have been reported before, but the secretary had not been informed of their decease.

1. Joseph H. Bates, Neponset, Ill. Date of death not known; A. B. Northwestern University, 1875; M.D. the same, 1881; elected, 1889.
2. W. S. Todd, Ridgefield, Conn. Died February 19, 1893; A. B. Wesleyan, 1864; M.D. Columbia, 1869; elected, 1883.
3. D. B. Cotton, Portsmouth, O. Died August 30, 1902; A. B. Marietta, 1853; M.D. Jefferson, 1856; elected, 1888.
4. F. H. Crocker, Machias, Me. Died June 12, 1903; A. B. Bowdoin, 1877; M.D. Bowdoin, 1882; elected, 1888.
5. George H. Cummins, Portland, Me. Died August 23, 1903; A. B. Bowdoin, 1872; M.D. Columbia, 1875; elected, 1888.
6. E. F. Bradford, Mechanic Falls, Me. Died February 8, 1904; A. B. Tufts, 1867; M.D. Harvard, 1869; elected, 1892.
7. Thomas M. Drysdale, Philadelphia. Died May 26, 1904; M.D. Pennsylvania Medical College, 1852; Honorary A.M. Lafayette, 1879; elected, 1879; Vice-president, 1882.
8. N. S. Davis, Chicago. Honorary member, elected 1886; died June 16, 1904.
9. Eugene E. Barnum, Lancaster C. H., Va. Died October 4, 1904; A. B. Williams, 1878; M.D. University of Buffalo, 1881; elected, 1883.
10. Thomas M. Drown, South Bethlehem, Pa. Died November 16, 1904; A. B. Central High School, Philadelphia, 1859; M.D. University of Pennsylvania, 1862; LL.D. Columbia, 1895; elected, 1897.
11. Henry M. Lyman, Chicago. Died November 21, 1904; A. B. Williams, 1858; M.D. College of Physicians and Surgeons, Chicago, 1861; elected, 1881; Vice-president, 1891.
12. C. D. F. Philips, London, England. Honorary member, elected, 1887; died in the winter of 1904-5.
13. George F. Keene, Cranston, R. I. Died March 13, 1905; A. B. Brown, 1875; M.D. Harvard, 1879; elected, 1895.
14. Jarvis K. Mason, Suffield, Conn. Died April 8, 1905; A. B. Yale, 1855; M.D. Harvard, 1861; elected, 1891.
15. Heber N. Hoople, Brooklyn. Died May 8, 1905; A. B. University of Victoria College (Canada), 1878; M. B. Toronto University, 1885; M.D. Bellevue, 1885; elected, 1904.

16. Horace Lathrop, Cooperstown, N. Y. Died July 11, 1905; A. B. Hamilton, 1846; A. M. Hamilton, 1849; M.D. Jefferson, 1852; Ph.D. Hamilton, 1866; elected, 1879; Vice-president, 1880.

17. Mahlon Felter, Troy. Died July 19, 1905; A. B. Union, 1857; M.D. Albany Medical College, 1859; elected, 1891.

18. Andrew C. Kemper, Cincinnati. Died August 15, 1905; A. B. Centre, 1855; M.D. University of Louisville, 1866; elected, 1888.

19. John G. Park, Worcester, Mass. Died August 30, 1905; A. B. Harvard, 1858; M.D. Harvard, 1866; elected, 1888.

20. Henry D. Didama, Syracuse, N. Y. Honorary member, elected, 1888; died October 4, 1905.

The membership changes are as follows:

Membership reported to the Academy at Atlantic City, corrected to May 14, 1904.

Honorary members.....	23		
Fellows.....	846	869	
Elected at Atlantic City.			
Honorary member.....	1		
Fellows.....	45		
Failed to pay initiation fee	3	42	43 912
Deduct.			
Deceased honorary members.....	3		
Fellows.....	17	20	
Resigned		4	
Suspended roll.....		2	
Name stricken from roll	1	27	885

With this report, we will submit a number of applications with our favorable recommendation, and also some resignations. Doubtless there will be some who will neglect to pay their dues for the third year, whose names will go to swell the size of the suspended roll. Much trouble would be saved and many changes be prevented in the rolls if the members will take advantage of the provision in the constitution which permits them to commute their dues by a single payment.

On motion of Drs. Leartus Connor and Carl von Klein, the report of the Council was received.

The secretary presented to the Academy those applications for fellowship that had been approved by the Council and recommended for election. After the applications had been read the secretary was authorized to cast a favorable ballot, and the applicants were declared elected.

The treasurer's report was read, showing a balance on hand, on

November 1st, of \$135.84. The report was referred to an Auditing Committee consisting of Drs. Leartus Connor, von Klein and Cohenaaur.

The president appointed Drs. Casey A. Wood, Leartus Connor and C. L. Mix as the Nominating Committee.

The resignations of Dr. Meyer L. Heidingsfeld, of Cincinnati, W. Reynolds Wilson, of Philadelphia, and John A. Wyeth, of New York, were presented to the Academy and were, on motion, accepted.

The hour having arrived for the open session, the Academy arrested the transaction of executive business at this point, upon motion.

The president presented the following corresponding delegates to the Academy during the open session, some of them not arriving in time to be introduced at the beginning of the session.

Prof. Charles R. Bardeen, University of Wisconsin.

Prof. Richard Olding Beard, University of Minnesota.

Prof. W. R. Bridgeman, Lake Forest College.

Prof. John M. Dodson, Rush Medical College.

Dr. W. A. Evans, Chicago Medical Society.

Prof. John J. Halsey, Lake Forest College.

Secretary B. D. Harison, Michigan Board of Registration in Medicine.

Prof. William A. Locy, Northwestern University.

Mr. W. R. Mitchell, Hyde Park High School, Chicago.

Prof. Burton D. Myers, University of Indiana.

Prof. James G. Needham, Lake Forest College.

Mr. H. L. Taylor, Department of Instruction, of New York.

Prof. Henry B Ward, University of Nebraska.

The report of the Committee on the Laws Regulating the Practice of Medicine¹ was presented by Dr. Charles McIntire, of Easton, Pa. It was discussed by Dr. Leartus Connor, of Detroit; Dr. B. D. Harison, of Sault Ste. Marie, Mich.; Dr. R. O. Beard, of Minneapolis; Prof. Charles R. Bardeen, University of Wisconsin; Prof. Burton Myers, University of Indiana; Dr. J. M. Dodson, of Chicago; Prof. Jas. G. Needham, Lake Forest College; and Dr. McIntire in closing.

The Committee to Investigate the Value of the First Degree in American colleges, presented a preparatory report on: "What Qualifications Are Necessary to Enter Properly upon the Study of

¹ See p. 237 of this number.

Medicine?" The report was read by Dr. Donly C. Hawley, of Burlington, Vt. It was discussed by Prof. W. A. Locy, of the Northwestern University; Dr. Leartus Connor, of Detroit; Dr. Carl von Klein, of Chicago; Prof. H. B. Ward, of the University of Nebraska; Prof. Jas. G. Needham, of Lake Forest College; Prof. Burton Myers, of the University of Indiana; Prof. J. J. Halsey, of Lake Forest College; Dr. J. M. Dodson, of Chicago; Dr. R. O. Beard, of Minneapolis; Dr. B. D. Harison, of Sault Ste. Marie, Mich.; and Dr. D. C. Hawley in closing.

The Committee on Teaching Hygiene in the Public Schools, presented its second partial report on: "The Present Teaching of 'Domestic Science' and 'Nature Study' in Public Schools so far as These Branches Include Teaching Hygiene." The report was read by Dr. Helen C. Putman, of Providence, R. I., and was discussed by Mr. W. R. Mitchell, of Hyde Park High School, Dr. Leartus Connor, of Detroit, Mrs. Winfield S. Hall, of Berwyn Ill., and V. J. Cohenaur, of Joliet, Ill.

EVENING SESSION.

In the absence of the vice-presidents, Dr. Leartus Connor, the senior ex-president present, was called to preside, while Dr. Winfield S. Hall, the president, read the annual address. Dr. Hall selected for his theme: "Altruism in the Medical Profession."¹

At the conclusion of the president's address, Dr. Casey A. Wood addressed the Academy on "The Eyes and Eyesight of the Lower Animals," which he illustrated by a number of colored lantern slides, demonstrating the ophthalmoscopic appearance of the background of the eyes of a number of animals. It was claimed that there was a law determining the arrangement of the blood-vessels and the *macula lutea*, whereby the relationship of animals could be traced. That, in certain instances, the background picture would place animals whose external markings were somewhat alike, in different genera, and related to other species not so closely resembling them. The slides as shown were in striking harmony with this claim, and a wide field of investigation is opened, by this new method of determining the relation of species.

¹ See p. 229 of this number.

FRIDAY, NOVEMBER 10TH.

The Academy met in executive session at ten o'clock.

The Council reported on the reports presented yesterday and referred to it.

1. It recommends that the report of the Committee on the Value of the First Degree be accepted and the committee continued.

2. That the Academy commend the work of the Committee on Teaching School Hygiene in the Public Schools and renew the recommendation of a year ago, that the committee be continued.

The report of the Council was adopted on motion.

The Council also reported additional applications for admission with a recommendation for their election. The secretary was instructed to cast the ballot in favor of the applicants and they were elected.

The Auditing Committee reported that it had examined the books of the treasurer and compared the accounts with the vouchers and found them to be correct and as reported yesterday.

The report was received and adopted upon motion.

Dr. D. C. Hawley, of Burlington, Vt., presented the following amendment to the constitution which was seconded by Dr. F. S. Johnson, of Chicago, and laid over under the provision of the constitution.

Resolved: That Article VII of the constitution be amended to read as follows:

ARTICLE VII.—REVENUE.

SECTION 1. The sources of revenue shall be the initiation fees, dues and the certificate of membership.

The initiation fee of five dollars shall be paid before admission and registration.

The annual dues shall be three dollars, payable at each annual meeting; the payment of annual dues shall entitle the fellow so paying to receive the Bulletin for the current year; to neglect to pay the annual dues for three years shall cause the name of the fellow so neglecting to be entered upon a separate roll, to be known as the list of suspended fellows, provided that all fellows elected previous to or during the meeting for 1898 shall not be liable to this penalty.

If any fellow pay the sum of twenty-five dollars at one time, he is freed from the payment of any subsequent annual dues, and is entitled to receive the Bulletin.

If any fellow admitted during or previous to the meeting for 1898 elects to pay no dues to the Academy, he shall not receive the Bulletin.

The subscription price of the Bulletin shall be three dollars.

SEC. 2. The money received from the payment of life dues shall be invested as the Council may direct, and the interest only can be expended.

The Academy at this point arrested the executive session and assembled in open session.

The following additional corresponding delegates were introduced: Superintendent Newell D. Gilbert, Public Schools, De Kalb, Ill.; Prof. W. N. Heilman, Chicago Normal School; Dr. H. F. Kallenberg, Institute and Training School, Y. M. C. A., Chicago; Dr. C. J. Ringell, Secretary Minnesota State Board of Medical Examiners; Superintendent R. K. Row, Public Schools, Berwyn, Ill.

The Academy listened with great interest to the following papers, contributed to a symposium on: "The Influence of Recreation upon the Individual and the Community."

I. "The Physiology of Recreation," by Dr. George W. McCaskey, of Fort Wayne, Indiana.

II. "Recreation in Its Influence on the Nervous System," by Dr. William J. Herdman, of the University of Michigan.

III. "The Relation of Recreation to Education," by R. K. Row, Superintendent of Schools, Berwyn, Ill. (By invitation.)

IV. "Recreation as a Sociologic Factor," by Dr. Donly C. Hawley, Burlington, Vt.

V. "Ceremonials and Festa in the Organized Recreation of Larger Groups of Individuals," by Dr. Bayard Holmes, of Chicago.

The discussion of these papers was opened, by invitation of the Committee on Program by Prof. W. N. Heilman, of the Chicago Normal School, Newell D. Gilbert, Superintendent of Schools, De Kalb, Ill., and Dr. H. F. Kallenberg, of the Institute and Training School, of the Y. M. C. A., of Chicago. It was continued by Dr. Leartus Connor, of Detroit, Dr. Kallenberg, Prof. H. B. Ward, of Lincoln, Nebraska, and Mr. R. K. Row, in closing.

At the conclusion of the discussion, the following action was taken:

Resolved: That the Council be requested to appoint a committee to review the papers on this symposium and present a

report suggesting a method by which the principles demonstrated may be brought to the attention of those who are or should be interested in them, for the purpose of influencing all to the employment of proper recreation methods.

The concluding paper of the session was read by Dr. Carl H. von Klein, of Chicago, on the "Medical Features of the *Papyrus Ebers*."

The Academy at this point entered into an executive session.

The Nominating Committee made the following report:

Your Committee on Nomination of Officers for the coming year respectfully suggest the following:

President.—Donly C. Hawley, Burlington, Vt.

Vice-President.—Helen C. Putman, Providence, R. I.; George W. McCaskey, Fort Wayne, Ind.; Henry B. Favill, Chicago; J. T. Searcy, Tuscaloosa, Ala.

Secretary.—Charles McIntire, Easton, Pa.

Treasurer.—Charles McIntire, Easton, Pa.

Assistant Secretary.—S. C. Stanton, Chicago.

(Signed)

CASEY A. WOOD,
LEARTUS CONNOR,
C. L. MIX,

Committee.

The report was accepted, upon motion, and the secretary instructed to cast the ballot of the Academy in favor of the nominees. This was done and they were declared elected.

Dr. Leartus Connor moved the following, which were seconded and adopted.

Resolved: That the thanks of the Academy be tendered to the Corporation of the Northwestern University for the use of the Assembly Hall and Committee room for our meetings.

Resolved: That the Academy express its appreciation of the work of the committees preparing this meeting. To the Committee on Papers for the excellent program, and the Committee of Arrangements for its arduous and varied work, which it must have employed to bring about such admirable results.

Resolved: That we extend a most hearty vote of thanks to the president who, in addition to his labors on both committees mentioned above, has presided at this meeting with credit to himself and with pleasure to us; and especially do we thank him for his address of last evening.

Dr. Winfield S. Hall proposed the following amendments to the constitution:

Resolved: That Article III, Sec. 2, be amended by the addition of the following provision:

a. (4). In lieu of a baccalaureate degree from a recognized institution, conditions of eligibility may be satisfied as follows: If the candidate is a medical graduate of at least twenty years standing and has, during that time, made notable and scholarly contribution to medical science, and has been active along lines in harmony with the ideals of the Academy, he may be elected to fellowship in the Academy, provided that not more than ten shall be elected under these provisions at any one meeting.

(b) Change the number of present provision (4), renumbering it (5).

The subject of medical history and the desirability of the Academy devoting a part of each session to its consideration was presented to the Academy as a result of Dr. von Klein's valuable paper on the *Papyrus Ebers*. After some deliberation the following minute was proposed which was referred to the Council under the rule.

1. That the secretary suggest to the Committee on Program for each year that papers on topics relating to the history of medicine be prepared, and that the period be indicated, to be presented in the papers of any meeting.

2. That the Academy recommend the medical colleges to institute a chair on the history of medicine.

The Academy then, upon motion, adjourned to meet in the banquet room of the auditorium in the evening.

AUDITORIUM, CHICAGO, NOV. 10, 1905, 9.00 P.M.

The Academy was called to order at the close of the supper. The secretary read a report from the Council recommending the election of Dr. William Jepson, of Sioux City, Ia. On motion the secretary cast the ballot for the Academy in his favor, and he was declared elected.

President Winfield S. Hall, after thanking the Academy for the honor bestowed, introduced President-elect Donly C. Hawley to the Academy.

President Hawley, on taking the chair, expressed his appreciation of the honor bestowed.

On motion the president was given permission to make the appointments at his convenience.

On motion the Academy adjourned.

The following were elected to membership during the meeting:

F. L. Adams, Oakland, Cal.

R. W. Avery, South Pasadena, Cal.

T. M. Aderhold, Ziegler, Ill.

C. S. Bacon, Chicago.

F. M. Allen, Chicago.

Frederic Bauman, Chicago.

- G. E. Baxter, Chicago.
 Carl Beck, Chicago.
 F. W. Belknap, Chicago.
 L. F. Bishop, New York.
 A. D. Black, Chicago.
 C. E. Black, Jacksonville, Ill.
 F. J. Bold, Imperial, Cal.
 W. C. Bouton, Waukegan, Ill.
 Blanche C. Boyle, Portland, Me.
 C. E. Boys, Kalamazoo, Mich.
 F. D. Brandenburg, Mankato, Minn.
 E. V. S. Brown, Chicago.
 R. C. Brown, Chicago.
 P. R. Burkland, Vermilion, S. D.
 A. H. Burr, Chicago.
 T. J. Burrage, Portland, Me.
 H. T. Byford, Chicago.
 F. J. Campbell, Fargo, N. D.
 J. A. Capps, Chicago.
 E. P. Carlton, Keyser, Wis.
 C. W. Carter, Batavia, Ill.
 W. M. Cavano, San Francisco.
 G. H. Cobb, South Orange, N. J.
 V. J. Cohenaar, Joliet, Ill.
 S. M. Cone, Baltimore.
 Cary Culbertson, Chicago.
 F. Cuttle, Chicago.
 H. J. Davis, Chicago.
 G. V. Dearborn, Boston.
 J. P. DeLaney, Geneva, N. Y.
 Joseph DeSilva, Rock Island, Ill.
 J. F. Duane, Chicago.
 W. P. Duncan, Jacksonville, Ill.
 L. W. Dunevan, Chicago.
 N. M. Eberhart, Chicago.
 E. Gard Edwards, La Junta, Col.
 D. N. Eisendrath, Chicago.
 E. W. Files, Gorham, Me.
 Dalmer Findlay, Chicago.
 Thomas Foster, Dayton, O.
 Mortimer Frank, Chicago.
 G. F. Freeman, U. S. N.
 H. E. Freeman, Millington, Ill.
 J. D. Garrett, Indianapolis.
 E. W. Gehring, Portland, Me.
 Harold Gifford, Omaha.
 H. F. Goodwin, Chicago.
 F. F. Gray, Hudson, Wis.
 F. R. Green, Chicago.
 W. S. Griswold, Seattle, Wash.
 C. D. Gulick, Urbana, Ill.
 A. M. Hall, Chicago.
 G. W. Hall, Chicago.
 R. W. Hardon, Chicago.
 O. M. Haugan, Fergus Falls, Minn.
 E. Forest Herdien, Baker City, Ore.
 C. W. Heywood, Riverside, Ill.
 S. G. Higgins, Chicago.
 C. J. Hinman, Chicago.
 E. B. Hoag, Pasadena, Cal.
 W. G. Hope, Albuquerque, N. M.
 J. P. Houston, Chicago.
 G. H. Hoxie, Kansas City, Kas.
 Henry Hulst, Grand Rapids, Mich.
 W. D. Humphrey, Virginia, Ill.
 John Inglis, Pueblo, Col.
 E. E. Irons, Chicago.
 T. J. Jackson, Chicago.
 William Jepson, Sioux City, Ia.
 E. A. Johnston, Lamont, Ill.
 H. F. Kallenberg, Chicago.
 C. E. Kelso, Chicago.
 E. K. Kerr, Chicago.
 H. P. Kirtley, Chicago.
 A. C. Klebs, Chicago.
 F. A. Lane, Chicago.
 W. S. Langfitt, Pittsburg.
 E. M. Layton, Chicago.
 F. A. Lensman, Chicago.
 H. S. Leonard, Indianapolis.
 D. D. Lewis, Chicago.
 T. H. Lewis, Chicago.
 David Lieberthal, Chicago.
 Iles McNeill, Newman, Ill.
 W. M. MacChesney, Chicago Heights.
 E. V. MacDonald, Chicago.
 O. H. Maclay, Chicago.
 G. P. Marquis, Chicago.
 J. L. Miller, Chicago.
 S. M. Miller, Peoria, Ill.

- Alfred Mitchell, Jr., Portland, Me.
 Carlos Montezuma, Chicago.
 W. B. Moulton, Portland, Me.
 J. C. Munro, Boston.
 J. B. Murphy, Chicago.
 E. M. Myers, Boone, Ia.
 R. T. Nichols, Liberal, Kas.
 W. A. Peterson, Chicago.
 F. W. Phelps, Chicago, Ill.
 C. E. Phillips, St. Charles, Ill.
 S. C. Plummer, Chicago.
 R. B. Preble, Chicago.
 E. M. Reed, Chicago.
 O. M. Rhoads, Bloomington, Ill.
 Byron Robinson, Chicago.
 Jay F. Schamberg, Philadelphia.
 Heliodor Schiller, Chicago.
 J. P. Schofield, Spirit Lake, Ia.
 T. B. Shaw, Worcester, Mass.
 H. M. Sherman, San Francisco.
 G. H. Simmons, Chicago.
 L. L. Skelton, Chicago.
 S. R. Slaymaker, Chicago.
 E. F. Snyder, Chicago.
- Kellogg Speed, Chicago.
 H. J. Stacey, Leavenworth, Kas.
 S. C. Stanton, Chicago.
 A. L. Stebbings, Marseilles, Ill.
 J. F. Stevens, Lincoln, Neb.
 E. C. Streeter, Chicago.
 Andrew Timberman, Columbus, O.
 J. B. Towers, Hibbing, Minn.
 T. N. Vincent, Washington, D. C.
 Lucy Waite, Chicago.
 J. M. Washburn, Chicago.
 John Weatherson, Chicago.
 J. C. Webster, Chicago.
 R. W. Webster, Chicago.
 C. J. Whalen, Chicago.
 F. R. Wheeler, Auburn, Ill.
 J. W. Wherry, Dansville, N. Y.
 W. W. Wilkinson, Silverton, Col.
 A. E. Williams, Rock Island, Ill.
 C. H. Spencer Williamson, Chicago.
 C. S. Williamson, Chicago.
 W. L. Wilson, Chicago.
 L. G. Witherspoon, Chicago.
 F. E. Wynkoop, Chicago.

The following Fellows were registered:

ILLINOIS: *Chicago*—E. Wyllys Andrews, Frank T. Andrews, Robert H. Babcock, Charles Sumner Bacon, George Edwin Baxter, Albert H. Burr, William R. Cisna, Carey Culbertson, E. D. Dudley, Louis H. Dunevan, Daniel N. Eisenbrath, Rosa Engelmann, Henry B. Favill, P. Max Foshay, E. J. Gardiner, Albert Goldspohn, Henry French Goodwin, Frederick R. Green, Winfield S. Hall, W. K. Harrison, W. W. Harsha, Samuel G. Higgins, Bayard Holmes, J. Nevin Hyde, Thomas J. Jackson, Frank S. Johnson, Henry F. Kallenberg, Arnold C. Klebs, Francis A. Lane, L. Harrison Metler, J. L. Miller, Charles Louis Mix, Carlos Montezuma, Daniel T. Nelson, Henry P. Newman, George H. Simmons, Samuel C. Stanton, Carl H. von Klein, Lucy Waite, W. W. Wentworth, C. S. Williamson, W. L. Wilson, Casey A. Wood, T. A. Woodruff.

Jacksonville—Carl E. Black, W. P. Duncan.

Joliet—Vincent Jacob Cohenaur.

Waukegan—W. C. Bouton.

INDIANA: *Fort Wayne*—G. W. McCaskey.

IOWA: *Alton*—D. V. Gleysteen.

Ottumwa—D. C. Brockman.

Sioux City—W. Jepson.

MICHIGAN: *Ann Arbor*—W. J. Herdman.

Detroit—Leartus Connor.

Grand Rapids—Henry Hulst.

NEBRASKA: *Omaha*—Harold Gifford.

PENNSYLVANIA: *Easton*—Charles McIntire.

OHIO: *Montpelier*—Joseph A. Wentz.

RHODE ISLAND: *Providence*—Helen C. Putman.

VERMONT: *Burlington*—Donly C. Hawley.

The president has made the following appointments.

Appointed members of Council, M. H. Richardson, Boston;
Thomas F. Kidder, Woodstock, Vt.; W. R. White, Providence;
Chairman Committee on Program, Winfield S. Hall, Chicago.

OBSERVATIONS IN PASSING.

The Chicago meeting had its triumphs and disappointments as have most affairs of life. The former so outweigh the latter that only the successes need be mentioned. The large increase in membership shows what can be done if there is a will to do, and this feature ought to be repeated next June. Nor was this increase due to a lenient Council, the applications that fail to meet its approval are never numbered and seldom spoken of; the ratio of these this year was up to the average.

Then the innovation of corresponding delegates worked well. The colleges and other bodies sent their representatives and these participated in the discussion, throwing a beam of light upon the subject from another angle, making the discussion the more valuable.

The program in its plan and the papers and reports in working out the details of the plan were up to the Academy's standard, and the papers with their discussions, when published, will be valuable for reference.

The Nominating Committee honored one who has done hard work for the Academy in its selection of a president, and it is fitting when meeting in New England to have a New England man for president.

(From the Lake Forest Stentor.)

THE AMERICAN ACADEMY OF MEDICINE.

On last Thursday and Friday occurred the thirtieth annual meeting of the American Academy of Medicine at the Northwestern University Building in Chicago. This Academy is an Association of nearly a thousand of the distinguished physicians and surgeons in the country, devoting its meetings to the general welfare of the profession and the state rather than to strictly scientific subjects. Its purpose is perhaps best expressed by its motto "Prodesse Civibus."

The meeting this year was somewhat of a departure from the usual program, as collegiate and other institutions were asked to send corresponding delegates who were invited to take part in the discussion, and in whose interest the program was in part arranged. From Lake Forest Professors Halsey, McKee,

Needham and Bridgman were in attendance during the whole of the first day's session. The special subject of interest to college men discussed on that day was "The Value of the First Degree in American Colleges." There was a really unanimous recognition of the importance of the American college as distinguished from the University and a most friendly expression of opinion towards the colleges and the work which they are doing. The visitors from Lake Forest took some part in the discussion and came home greatly pleased with the reception which they had received, and the attitude of the society towards institutions like our own.

* * *

INFORMATION WANTED AS TO THE PRACTICAL LIVES OF THE BLIND.

Dr. George M. Gould, 1722 Walnut street, Philadelphia, will be grateful for any trustworthy information as to the methods which have been devised by the blind in overcoming their disability or in gaining a livelihood. Accounts of such lives, anecdotes, references to literature, etc., will be appreciated.

* * *

Dr. S. B. Miller, at Laramie, is now secretary of the Wyoming State Board of Medical Examiners, and not Dr. C. P. Johnston, of Cheyenne, as incorrectly stated in the last number on page 207.

* * *

New York at last is getting the working of its medical practice act in such shape as to be able to pay attention to the reciprocity feature. From a circular received from the secretary of the New Jersey Board of Examiners, arrangements for the reciprocal endorsements of the licenses of these two states have been made.

LITERATURE NOTES.

BIOGRAPHIC CLINICS. VOLUME III. Essays concerning the Influence of Visual Function pathologic and physiologic upon the health of patients. By GEORGE M. GOULD, M.D. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St. 1905. Cloth. 516 pp. Price, \$1.00 net.

Dr. Gould gives us another of his readable volumes full of suggestion, and thought-producing. The book contains 13

chapters and two appendices, two of the chapters treat of the life history of John Addington and Taine, two are contributed by other authors, and some of the remaining chapters have been published elsewhere. That Dr. Gould's opinions are not always accepted in their entirety by all ophthalmologists, is an added reason why his views should be carefully read and his statements carefully investigated. It is far from improbable that much that is now opposed will eventually be accepted, with added knowledge and a clearer view of the whole subject because of this diversity of opinion.

THE PHYSICIAN'S POCKET ACCOUNT BOOK. BY J. J. TAYLOR, M.D., Editor of the *Medical Council*, Philadelphia. 200 pp. Bound in leather. \$1.00.

We again commend this work of Dr. Taylor, believing it is, as he claims it to be, a method of book-keeping acceptable to the courts as evidence of services rendered.

THE PHYSICIAN'S VISITING LIST (Lindsey and Blakiston) FOR 1906—Fifty-fifth year of publication. Philadelphia: P. Blakiston's Son & Co. Leather bound with tuck and pencil, \$1.00 to \$2.25, depending upon the size.

The Apostle Paul once wrote: "To write the same things to you, to me indeed is not grievous, but for you it is safe," and this is our dilemma in calling attention to this old visiting list, but one that is constantly renewing its youth and keeping in the van of the procession. The only things to say have been said, and a repetition expresses the truth regarding the present issue.

We are in receipt of advance sheets of Chapter XXVII of the report of the United States Commissioner of Education for 1904, on Professional Education. We recall the corresponding chapter of a report issued years ago, which showed but little care in its preparation. This chapter is gratifying in its comparison. We are told in the year 1903-4, there were 152 medical schools, 3,054 professors, 2,198 special and assistant instructors, 26,949 students, of whom 5,702 were graduates in 1904 of whom 1,942 had a literary degree (this indicates no dearth of material for membership in the Academy). The grounds and buildings are valued at \$13,989,263; the endowment funds amount only to \$1,665,416.

The income, excluding benefactions, is reported to be \$1,318,570 and the benefactions \$376,755. 220,822 volumes are in the libraries. Of the benefactions Cornell received the largest amount, \$126,000, and the Northwestern University the next, \$84,698.

The Central States Medical Monitor is a happier title than is usually coined by the union of two names. It represents the union of the *Central States Medical Magazine* and the *Medical and Surgical Monitor*. The editors of the two journals also join forces. We congratulate everybody on the consolidation. The editors will be able to do more satisfactory service; the subscribers will have a better magazine; the profession of Indiana will be better taken care of; and the exchange editors will have a better time.

We have spoken before in unstinted praise of the excellence of the *Literary Digest*¹ as an aid to the busy man to keep himself informed of the affairs of life. The last year has been a testing one, since the world's affairs have been so crowded with items of importance, and that in every department. The *Digest* has maintained its reputation and we can commend it to every one who wishes to know the opinions of those who mould the world's thought, or who are developing its resources—physical, mental, or spiritual.

It is not the custom of the Bulletin to refer to its advertising pages. These are kept few so they can easily be scanned by the reader. At this time we depart from our custom, to call attention to the *Fourteen Good Offers* for clubbing the Bulletin with other journals. Bring the offer to the notice of your friends. The offer is especially liberal in that it includes old subscriptions as well as new. It was accepted by the Bulletin solely for the benefit of its readers and all the commission offered to us is included in the combination price. The offer is but for a short period and must be made use of during the month of January to insure its acceptance.

¹ New York: Funk and Wagnalls Co.

The unrest in the printers' world reached the office where the Bulletin is printed and caused a disarrangement in all the plans, which results in the belated appearance of this number. The effort will be made to catch up and to publish the numbers for 1906 much more promptly. All delays, however, cannot be laid at the printers' door. Thus, it is the rule of the Bulletin to submit the stenographer's notes of the discussion to those who participated in the discussion for their editing. It is also the rule not to include in the discussion any unedited remarks. Naturally, it is the desire to have the discussion as complete as possible, and some of the delay is due to the fact that the discussion on the report published in this number does not contain the remarks of all the speakers. Had we waited until the time of this writing we would not have been able to have had it more complete. This explanation is due our readers that they may know why the remarks of some do not appear, and also in justice to the printer.

BULLETIN

OF THE

American Academy of Medicine.

VOL. VII.

ISSUED FEBRUARY, 1906.

No. 5.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or address published in the BULLETIN.

THE INFLUENCE OF RECREATION UPON THE INDIVIDUAL AND THE COMMUNITY.

I.

THE PHYSIOLOGY OF RECREATION.¹

By G. W. McCaskey, M.D., Fort Wayne, Ind., Professor of Medicine and Clinical Medicine, Indiana Medical College; The Medical School of Purdue University.

Recreation or the act or state of being created anew is one of the vitally important requirements of modern life, and is grounded in a practically universal instinct of the human race. Though its need becomes more pressing with the increasing strain of modern civilization, yet in one form or another it can be traced backward to the beginning of history. Homer, for instance, gives us in the Iliad a soul-stirring account of the games given and presided over by Achilles after the funeral of his friend, Patroclus, while Virgil relates how Æneas, driven by fierce winds from the coveted Italian shores, back to the "Sicanian ports," celebrates the anniversary of his father's death by a brilliant series of what at Newport would be called events of the season, the first one being a boat race, a not unworthy progenitor of the modern yacht race. Later still the culture and civilization of historic Greece, the aroma of which comes floating down the ages with inexpressible sweetness, was permeated—nay almost dominated—by the passionate thirst for recreation, and the Olympic games became the chronologic landmarks of their history. Rome had its

¹ Read before the American Academy of Medicine at Chicago, Ill., Nov. 10, 1905.

Colosseum, and if its walls reechoed, as they must, the gross and sensuous cruelty of that age, they also reechoed the commanding sentiment of that age, as of all other ages concerning the need of recreation. A careful study of races and peoples down to our own gay Paris on the one hand, and the Fiji Islanders on the other, will reveal the same tendency in one form or another throughout. Now it cannot be doubted that a habit so universal—a desire so absolutely cosmopolitan—must be the expression of an imperative demand, a fundamental requirement of the human race. The consequences entailed by its neglect vary widely with the temperament, the environment, and the occupation of the individual, but in the strenuous struggle which characterizes the intense life of to-day, they range anywhere from slight impairment of health and working capacity to final and crushing disaster. It was no distorted fancy, but only another of those clear, almost prophetic gleams of light which so frequently illuminated the soul of Shakespeare when he said:

“Sweet recreation barred, what doth ensue
But moody and dull melancholy,
Kinsman to dull and comfortless despair,
And, at her heels, a huge infectious troop
Of pale distemperatures, and foes to life?”

A general discussion of the physiologic effects of recreation presents difficulties of a rather unusual character. To begin with, the modes and methods of recreation are so multiform and heterogeneous in character that it is difficult to bring them clearly and comprehensively within the range of mental vision for analysis and review. If an attempt were to be made to classify the various forms of recreation it could be worked out along various lines. They could, for instance, be divided into those of an indoor and outdoor character; again they could be considered as intellectual and physical, which would not be at all parallel to the first named division, although recreation of an intellectual character would be, for the most part, included among those of an indoor character. Others could be designated as social in nature, the complexity of the social attribute varying anywhere from the chance meeting of two or three individuals for recreative purposes up to the most elaborate ceremonial function evolved

by modern society. Without making any attempt at a systematic and complete discussion of the physiologic changes produced by all the different forms of recreation, which would be difficult under any circumstances, and impossible in a 15-minute paper, I will proceed to call attention to what appears to me to be a few of the more important and salient points. It appears to me in the first place that the primary and predominant factor in practically all forms of recreation is the psychic one. Although the influences of the mind over the body are recognized in a general way, it is, I believe, fully comprehended by few if any. The sudden change from a state of extreme depression and misery with perfectly distinct physical suffering to one of buoyancy and exultation with entire forgetfulness of self as a result of a change of our emotion is a not unfamiliar experience in the lives of most people. But the lesson which it should teach, or the great fundamental law of our being to which it clearly points, is for the most part perceived or more commonly not even suspected. It should be emphasized therefore that the functional state and activity of the principal organs of the body are dependent upon the controlling influences of mental conditions more than upon any one factor, even more perhaps than upon all other factors combined. This proposition is so fundamentally important and so liable to be challenged by incredulity that I will at once offer some facts for its support.

I will first draw some illustrations from the stomach which will readily be conceded to occupy a most conspicuous position among the vital organs of the body. Here again the influences of psychic states upon the activity of the digestive processes are recognized to a certain but entirely inadequate extent. It has remained for a Russian scientist, Professor Paulow, of St. Petersburg, to demonstrate in an absolutely unequivocal manner the remarkable influence of psychic impression upon the secretion of the gastric juice. The experiments to which I refer may be briefly described as follows: He first made a fistula in the stomach through which the stomach could be inspected and the gastric secretion procured. The next step was to lay bare the esophagus, cut it in two and so arrange the upper segment that anything

which the animal swallowed would be discharged externally instead of passing into the stomach. The dogs were then allowed to become quite hungry, and were then subjected to sham feeding; that is, they were allowed to eat freely, the food, of course, never reaching the stomach. At the beginning of such an experiment there would not be a single drop of gastric juice in the stomach. Within five minutes from the beginning of the sham feeding, gastric juice would begin to pour into the stomach and continue to do so in large quantities for a considerable period of time. On the other hand, if the meat was introduced into the stomach through the fistula, thus robbing the stomach of the influences of psychic impressions derived from the taste and smell of the meat, the flow of gastric juice did not begin until twenty-five minutes after the feeding instead of five, and was deficient both in quantity and quality. To make the proof of the psychic stimulation of gastric secretion entirely conclusive, however, and remove any possibility of reflex nervous influences reaching the stomach by reason of the act of mastication, deglutition, taste, etc., the animal was simply tempted with the sight of food which he could not reach, and the psychic impressions thus produced started the flow of gastric secretion in six minutes in quantities larger than those produced by the direct introduction of the meat into the stomach through the fistula.

Nothing can be more conclusive than the experimental proof thus offered of the almost instantaneous and remarkable influences of psychic impressions upon the gastric secretion of the dog. It is true that these psychic impressions were of a specific character and were intimately connected with the law of physiologic association with the process of gastric function, but this does not in any way alter the fact that impressions of a purely psychic character, that mental states and processes are capable of throwing the stomach into a state of functional activity.

These experiments, moreover, are sustained by the commonplace facts of clinical observation. It is not necessary to dwell upon this aspect of the question. It is not a rare thing for the stomach to utterly fail in the digestion of a meal which it would otherwise have disposed of with ease and comfort, because of

some depressing mental state, while on the other hand the stimulating influence upon digestion of pleasant surroundings and convivial company is well known. As an illustration of the broad effects of mental impression in general, I may mention the case of a gentleman under my observation, whose digestion after considerable improvement remained more or less distressing in spite of all I could do for his relief which included the treatment of a local stomach disease by suitable methods, careful regulation of diet, gymnastics and a liberal amount of outdoor exercise. This gentleman would go to a little lake forty miles away, and the very first meal that he would eat there, long before there could be any possible effect of exercise, atmospheric change, etc., would be digested without the slightest disturbance or even consciousness on his part, and this would continue until his return to the city when the old conditions would be immediately resumed.

I cannot go very much further along this line, but will briefly mention the heart and kidneys as other vital organs, which are profoundly and obviously influenced by psychic impressions as every clinician and as many an intelligent layman knows. Now what is true of these organs is perfectly true of every other organ of the human body, and it is only necessary to take one further inevitable step to realize the effect which mental states must have upon the composition of the blood and elimination of self-formed poisons from the tissues and the functional integrity of the nervous system itself. In short, all that goes to make up the sum total of that perfect somatic life which we designate health is under the more or less complete domination of those functional manifestations of the highest nerve centers which we are pleased to term our mental states.

The bearing of these facts upon problems connected with the physiologic effects of recreation is obvious. If the various forms of recreation are closely scrutinized, it will, I think, be found that those diversions and amusements which produce the promptest and most brilliant effects upon both the mental and physical states of those who participate are precisely those in which the psychic impression is the strongest. The first requisite then in

what might be termed successful recreation is a complete diversion from self, a complete submergence of self-consciousness, which inhibits that everlasting introspection of our physical selves which is the foundation of half the morbidity of the world. How this can best be done is a problem for the individual and depends upon his age, sex, social status, intellectual development and other factors which go to make up the complete ego. For many persons some sort of diversion which has fast motion as an element meets the psychic requirements better than anything else. Automobiling belongs to this class of recreation, and I can personally testify to the remarkable influence which it has along the lines indicated. So far as my own taste and needs are concerned, I know of nothing that compares with it, but for some one else something entirely different might be better. Any one who is curious to study the possibilities of fast motion in recreation should read an article by W. J. Lampton in the *Cosmopolitan* magazine for June, 1902.

So far I have only considered the psychic element, which in certain forms of recreation is the only or principal factor, but in all is of the greatest importance. The next point to which I would ask your attention is the purely physical or mechanical aspect of many forms of recreation; in other words the factor of muscular exercise. The effects of physical exercise upon the circulation and the general function of the body is too broad a subject to enter upon in detail, although reference may be made to a few points. Every muscular contraction, for instance, squeezes the blood and interstitial fluids out of the contracting muscle and sends them on their way through the proper channels. The expanding vessels and interstices of the relaxing muscle are instantly filled, and thus the circulation is quickened and the nutrition of the muscle improved. More than this the increased activity of large groups of muscles such as those forming a part of the abdominal and chest walls bring to bear certain influences upon the contained viscera. In this way, the liver and spleen of the digestive tract are subjected to intermittent pressure which exerts an extremely important influence upon their functional activity. The same thing is true with reference to the lungs and

heart in the chest cavity. Furthermore, the deep breathing incidental to physical exercise tends to better lung expansion and lung circulation and increases the resistive power of those organs against morbid influences, especially the tubercle bacillus. Better aeration of the blood is one of the necessary results of improvement of these functions which means better nutrition and better elimination and consequently an improvement in the state of the entire organism. It does not appear necessary to do more than barely call attention to these facts as they are in accordance with well established physiologic laws and must be perfectly obvious to every one who will give the matter the least consideration.

There is, however, one aspect of this question of physical exercise which is not at all familiar and which promises to be of the utmost importance in the final solution of many of the problems of both healthy and morbid physiology. I refer to the metabolism of muscular tissue. Within the last few years great activity has prevailed in the investigations along these lines and most important results have been obtained. It will be impossible to enter fully into the subject, but I may say briefly that we must look upon the skeletal muscles of the human body as something much more than a motor mechanism. In fact many of the most important chemical changes which go to make up the sum total of what we glibly call metabolism probably have their seat here. For instance it is more than suspected that diabetes is a result of faulty muscle metabolism as well as of pancreatic and other forms of disease, and it is more than probable that the chemical products of muscle metabolism play a tremendous rôle in the varied functions of life. I must refer you to the works of Geis, Halliburton and others for the facts in this fascinating chapter of scientific research. It will serve my purpose at this time to point to the close relationship which must exist between the functional activity of a muscle and its metabolic changes as an indication if not a proof of the way in which physical exercise exerts so large an influence upon the life of the individual, and as furnishing important data for clearing up the physiology of recreation.

One other point that deserves mention in relation to outdoor

recreation is the differential effect of indoor and outdoor air. The chemistry of the air of rooms surcharged with exhalation of human beings is very largely an unwritten chapter. Carbonic acid, its most conspicuous component, is perhaps from a toxicological point of view, its least important one, and it is now realized that the deleterious influence of such air is due to volatile poisons altogether too elusive for chemic manipulation. No ordinarily practicable amount of ventilation will entirely free the air from them. At best they can only be diluted. Out of doors, however, they are either destroyed or so infinitely diluted that they become quite unimportant, and self-poisoning from noxious materials in the air under favorable conditions does not occur.

I fear that I have violated the tradition of this honorable body by dragging into this discussion the brute facts of science, which Oliver Wendell Holmes once called "the lumber of the human intellect," but the nature and importance of the subject appear to justify this descent from the higher social, educational and ethical plane on which the Academy is supposed to stand down to the every-day world of scientific thought. The vital relationship of recreation to the entire fabric of modern society should be more thoroughly understood and more consistently adhered to by a large contingent of the human family. I do not, of course, refer to that not very respectable class whose sole aim in life is the realization of pleasurable sensations. They are out of the reckoning here as they are in every sensible and serious consideration of the problems of life. Recreation is not the great business of life, but simply relaxation from it. There are, perhaps, few of us who would contemplate with unmixed satisfaction the realization of Tennyson's fancy when he says,

"I built my soul a lordly pleasure house,
Wherein at ease for aye to dwell,"

but the systematic introduction into our lives of such recreation as is suited to our individual needs should be the rational aim of all, and a proper understanding of the physiologic laws and facts which underlie the whole subject could not be otherwise than helpful.

It has only been possible for me to touch upon a few points, and I will conclude with the admonition of Virgil that "Rural recreations abroad, and books at home, are the innocent pleasures of a man who is early wise."

II.

RECREATION IN ITS EFFECTS UPON THE NERVOUS SYSTEM.¹

By WILLIAM JAMES HERDMAN, M.D., LL.D., Ann Arbor, Mich.

The nervous system of man or of any animal in a normal state of development is co-extensive with the tissues and organs that form the body in its entirety.

Wherever, in any part, a function is performed, no matter how insignificant or unimportant that function may be, as compared with others, the nervous tissue has taken a part, and that the leading, the controlling, the governing part in its performance.

We have accustomed ourselves, at times, to speak of brain-work and of muscle-work as if between the two there were no bonds of union; as if they were two entirely different things.

The fact is, in normal physiologic action there is no such line of separation between them. There is no form of manual labor that is not at the same time brain-labor or at least labor of the nervous system or of some part of it. Equally true is the reverse of this, although the fact may not on first thought appear so obvious, that brain-work is inseparable from muscle-work.

Nor is it only in the movements of voluntary muscles that the labor is shared by the nervous system for it has its part in exciting and directing the involuntary muscular contractions and relaxations which enter so largely into the activity of the organs of alimentation, circulation, respiration and elimination.

Glandular secretions and excretions, the nutritional processes of whatever sort are likewise under its control and management, and wherever in any one of these several lines of duty it performs its service it pays the penalty of its vigilance by expenditure of energy and is subject to the same general laws of waste and repair that apply to the action of the tissues of any of the several organs whose work it supervises.

The commanding position which the nervous tissue occupies among the other tissues of the body does not release it from the operation of those physical, chemic and mechanical laws to

¹ Read before the American Academy of Medicine, Chicago, Nov. 10, 1905.

which they are subject but on the contrary the greater complexity of its molecular structure, and the higher potential energy which that structure develops and expends in action, serves but to accentuate the requirements of those laws, and make more conspicuous the necessity in it for periods of rest from activity during which a new supply of energy by molecular reconstruction may take place.

When we leave the activities of the nervous system which operate on the physical side of our organism and turn to the relations it sustains to the mental side, the same results are here apparent. Whatever differences of opinion may be held by us as to the mysterious relationship between brain and mind we must recognize the fact that all mental operations are attended by molecular activity, waste and repair, in some portion of that infinite number and variety of neurons which together make up the nervous structure.

All action, therefore, be it physical or mental in which the human organism engages, is attended by the expenditure of nerve energy liberated by a process of combustion. Complex molecular combinations slowly formed in the neuron have stored this energy which in the much briefer period of the neuron's functioning is again given out, while the molecular combinations drop to simpler forms.

A period of rest for reconstruction is consequently a fundamental requirement of all nervous action in common with the action of other tissues. In some functions of the organism where the needed combinations are comparatively simple and unvaried the time required for this recuperative work is brief. The higher the order, the more complex the function, the greater is the number of neurons engaged in the process and the greater the expenditure of nerve energy, with a consequent lengthening of the period of reconstruction. This again is a universal law which pertains to the action of all living tissue, animal and vegetable alike, and is in no sense peculiar to nervous tissue.

But in considering the necessity for recreation as a requirement in the human organism it is to the application of these laws to the nervous system that our attention is mainly directed, for the

human organism as a machine for doing work must in its essentials be regarded as a nerve tissue mechanism. All other tissues and organs of the body must from this point of view be looked upon as subordinates to it, contributing to its maintenance or executing its commands. In this connection the following from Mosso's celebrated work on fatigue is pertinent:

"Some authorities maintain that our body has many reservoirs of energy, diverse one from another, and adapted to the diverse needs of life, and that these magazines of energy can be drawn upon independently of one another.

"They believe, for example, that the amount of force at our disposal for muscular movement may be exhausted by walking or other muscular contraction, while the provision of energy which the nervous system holds in reserve for the work of the brain is held intact. And this provision of energy may (likewise) remain distinct from that which serves, for example, for the genital functions.

"I do not believe that our organism is made in this fashion. *The nervous system is the sole source of energy*; and although we must admit a certain amount of localization, this is not of such a nature as to prevent the neighboring organs feeling any loss through the great activity of any one organ. The exhaustion of energy is general; and all the magazines of energy can be drained by the exaggeration of any activity whatever of the organism. The conclusion to which we are led by my experiments is that *there exists only one kind of fatigue, namely, nervous fatigue*; this is the preponderating phenomenon, and muscular fatigue also is at the bottom an exhaustion of the nervous system."

We must conclude therefore that when we undertake to consider recreation after toil as a need of the human organism it is in some part, if not in the whole of the nervous system, where that need has arisen. And this is quite as true of mental as of physical labor, of emotional expenditure of energy as of that which results in glandular secretion; it is the nervous system which must "pay the piper" for it is in its structure, chiefly, where the need for molecular reconstruction has arisen.

If then this highly organized tissue upon which the faculties of man, both of mind and body, depend, is no exception to the rule that time and means for repair must follow waste, what are the peculiar conditions for recreation, if any, that attend its action in man?

Whatever conditions of recuperation and consequences of waste in nervous action are found in man that are not exhibited

in the lower animals are due to the wider range of activity and resource which man's nervous system possesses.

While he shares his physical nature with the higher animals the nervous structure in man transcends that of all other animal life in its possibilities of an ever-expanding association with the realms of mental and spiritual existence.

Acting upon this higher, broader plane there are, in the activities of man's nervous system, channels both for the outpour and the intake of nerve energy peculiar to him as a special type of organized being.

But man may so live, either by necessity or choice, as never to gain possession of his full inheritance.

A life that is all work, narrow in its range, pouring out its store of nerve energy in muscular effort, unvaried, monotonous, an occupation that makes a mere machine of both body and mind and keeps that machine incessantly employed day in and day out, gradually but surely leaves its permanent imprint on that plastic substance, the nerve tissue, which serves as the medium of action and reaction between the physical forces on the one side and the mental and spiritual on the other. It becomes fixed and restricted in its channels of communication. Both the receptive and expressive capacities of the mind of such a man atrophy from disuse, destroying the possibilities of a larger life.

Here both the mental and the physical activity are reduced to a fraction of that of which the organism is capable. Of necessity many channels of recuperation are, in such a life, dried up, or, more properly speaking, have never been created.

Continued and unvaried draughts upon the reservoir of energy which any nervous system has stored, no matter through what channel the depletion takes place, not only disregard directly the law of recuperation for the organs so used, but indirectly, through the neglect of other faculties, limit the sources from which new supplies of nerve force might be supplied.

While we must recognize that periods of cessation from activity, rest from labor, time allowed for rebuilding, and reproduction of lost energy is a primary requirement of nerve tissue whatever the function assigned it, there are other and equally important

essentials, such as favorable conditions for the removal of waste products and an abundant supply of fresh nutrient material.

Again, in a highly complex nervous organism like that of man, with its variety of functions, the need of rest is oftentimes only local. When the activity has been somewhat general and continued for a considerable length of time, or a local activity has been intense and prolonged so as to make a considerable drain on the entire organism the restorative conditions are best secured by general sleep, in which all the higher nervous centers share. While we all recognize the restorative effects of healthful sleep and the renewed energy which it brings to tired brain and nerves, this is not the sort of refreshment which we call recreation even though the supply of our vital force is oftentimes recreated most effectually in this manner.

Recreation, physiologically speaking, is *local* sleep for an exhausted part, not general sleep, and the fundamental principle of all recreation consists in this local rest which is secured by a change of organic activity. In the brain of man, with its common source of nutrition, but with its complex centers and functions acting independently, the plan best suited for recuperating lost force in a functioning centre is to excite activity in some associate centre. The needed conditions in blood supply and lymphatic action, in commissary and scavenger service, are thus maintained, and the work of reconstruction is hastened and promoted. If at the same time the processes of nutrition are accompanied by agreeable emotions, the organism is in the most favorable state for quick and abundant restoration of energy to the exhausted part.

In stating that recreation consists in shifting the activity from an exhausted to a rested area of the nervous system no new fact has been revealed nor any new principle evolved, and yet if we permit our minds to dwell upon this simple fact in its relation to individual needs for recreation it will be the means of much enlightenment.

The practical methods by which suitable recreations are to be selected to meet the requirements of special classes or individuals must start from this fundamental principle but they will vary as tastes, occupations and opportunities vary.

From the complexity of occupations in which our fellows engage there results the greatest variety of channels through which the store of nervous energy is depleted. Likewise taste, inclination, interests and opportunities for their exercise, are so various that the transfer to congenial, and at the same time possible, activities as recreative means is largely a matter for individual decision.

It is true of the nourishment of the intellectual faculties as of those of the body that "what is one man's meat is another's poison." The restful quiet of the cemetery, with its suggestions to memory or imagination, is to many an ever-refreshing spot, and these find themselves in hearty sympathy with the genial Mrs. Doolittle who, when called to account by a neighbor for her peculiar liking for this novel place of recreation, expressed herself as follows:

"What be I doin' all 'lone in the buryin' ground? Why anybody with half an eye could see I was settin' here knittin' an' enjoyin' myself.

"You don't see how anybody can enjoy themselves in a buryin' ground?

"That's cause you're too young to know that pleasures is diff'rent things to diff'rent people. It's most like visitin' these folks I used to know to set here by their graves an' think of all the good times we've had together. Sometimes I go to one lot an' sometimes to another. I'm visitin' the Reeds' now. When I git tired I walk 'round.

"It's very int'restin' walkin' in a graveyard where you know the folks. Ther's lots o' good readin' on the stones too, an' some that's funny if you know the folks that's lyin' under 'em."

Here are the unmistakable signs of a genuine and effective recreation. Both mind and body are getting from these lugubrious surroundings that diversion from the monotonous routine of daily life which will return them to their round of duties refreshed and strengthened. And this is the result to be sought for in choosing a recreative activity. "If the recreation chosen renders a man less fitted for work, or if it is of a kind that is wasteful of time in securing the needed result, then it is not of the best" (Romanes).

Broadly speaking in the light of the foregoing principles governing the action of the nervous system we would say that recreation is best accomplished when mental-work is followed by muscle-work or *vice versa*.

As was said in the beginning, muscle-work is not wholly excluded from even the most exalted mental operations nor are the mental activities of necessity asleep when the monotonous task is measured by horse-power. Yet we may well say that these two forms of action make their demands at opposite extremes of our reservoir of energy and are in a certain sense rivals in its expenditure, and yet their relationship is one of interdependence. The symmetrical development of the channels of both, in recuperative and expressive activity, is essential to the highest type of manhood, and between them there should exist that readiness of response and mutual good fellowship that will permit of an easy transfer of occupation when need be for the welfare of both.

A union of this sort between brain and muscle is one of mutual respect. The one cannot say to the other "I have no need of thee" for each recognizes the other's worth and the relation each bears to the other's efficiency.

Purposive muscle-work is far more recreative than the aimless kind and yet when engaged in for recreative purposes it should not be of too strenuous a kind. It should be of such nature as to stimulate gently the mental faculties associated with its activities and thus it creates the conditions for recuperation, while at the same time it gives the needed rest to those mental faculties not so closely allied to muscle action.

For this reason outdoor plays and games requiring some skill, such as boating, fishing, swimming, skating, horseback riding, gardening, tool-work, and the like, are of much more recreative value than any of the artificial gymnastics which have no purpose or incentive beyond the movement itself.

The proper emotional accomplishment is much more likely to attend the former class of recreations than the latter, and the value of agreeable emotion as a recreative factor has already been referred to, and is well recognized.

Further, the larger the proportion of intellectual interest and enjoyment that can be associated with the chosen recreation the greater becomes its value as a restorative.

If the need for a transfer to muscular centres of activity can be

directed by an interest in a natural science or some branch of natural history, as botany, biology, geology or mineralogy, and the wearied brain-worker goes "a field" in response to some such fad or pastime the highest benefit is attained, provided his zeal is tempered with moderation.

For the brain-worker the way is open to recreations innumerable, and the opportunity for choice and the possibility of varying their character, at will, makes his problem of healthful living an easy one if he will but cultivate a sufficient variety of interests so that when one channel of activity is for any reason closed to him as a relief from necessary work, he has but to choose another. The practical result of this is seen when we come to compare the statistics of health and longevity of the brain-worker and of the muscle-worker. The researches of Dr. Beard and others have shown that brain-workers not only live from fourteen to twenty years longer than muscle-workers but that their health is more uniformly good and their stature of larger average.

"We get thus a little light on the nature of healthful recreation and its *modus operandi* as we let our minds rest on this one and almost exceptional class of men of varied life and action of a mental kind. They come before us showing what recreation can effect through the mere act of varying the labor.

"The brain-worker who is divested of worry, is at once the happiest and healthiest of mankind—happiest, perchance, because healthiest—a man constantly *re-created*, and therefore of longest life."—*B. W. Richardson*.

But what shall we say of recreation for him whose life is daily chained to *muscular* toil? Who by the very conditions and circumstances that make this kind of work a necessity is restricted in his opportunities for change, both within and without.

For such a one the nervous reservoir of energy has, on the mental side, but few channels either for dispersion or replenishment. If his occupation is such that its daily demands bring fatigue, sleep alone furnishes the needed refreshment. All local centres of nerve energy which might serve as avenues for recreation are drained to supply the current which the daily toil demands. And if both time and strength remain when tasks are ended, the resources and incentives for occupations that are truly recreative are so meagre that the pathway chosen for ex-

penditure leads to waste if not to positive injury. But slowly the appreciation is dawning of a need for healthful avenues of recreation for him who toils with his hands. The signs of the morning are seen in the insistent demand for a juster wage and less hours of labor; in the awakening to a sense of manhood and a capacity for more rational enjoyments among the laboring classes. And on the part of him who has already in a measure drunk from the refreshing springs of recreation which the mental activities afford, when directed away from mercenary aims, there is a growing disposition to turn about and point out to his less fortunate fellow the way, and perhaps aid in furnishing the means, whereby he may be enabled to share in the benefits he has himself enjoyed.

The frequent examples which modern times have furnished of quick transition in the same person from hand-labor to brain-labor, from poverty to affluence, have served not only as an inspiration to a hitherto hopeless class, but through these breaches in the barriers human sympathy has found a pathway for traveling back and forth, and a better understanding and mutual respect between hand-worker and brain-worker is on the increase.

The growth of such opportunity and of human fellowship has much of promise in it for enlarging the field of healthful recreation, since, as we have seen, it is upon the mental side of the nervous system that the greatest variety of recuperative agencies are possible. Here the expansive capacity, as far as we can at present see, is unlimited, the variety and directions of growth as numerous as individual tastes, and along these pathways which lead to wider fields of attainment the resources for normal enjoyment and recreation are correspondingly great.

When mankind is once emancipated from the conception that honest work is contemptible drudgery, and learns to recognize the pleasures and recompense it has in store when rightly apprehended, which means that the work selected must be suited to individual capacities and tastes, and when greed and selfishness give place to a spirit of mutual helpfulness the problem of recreation will be solved.

III.

CEREMONIALS AND FESTA IN THE RECREATION OF LARGER GROUPS OF INDIVIDUALS.¹

By **BAYARD HOLMES, M.D.**, Professor of Surgery in the College of Physicians
and Surgeons, Chicago.

The belated recognition of the value of play as an educational and social factor must naturally extend itself from the individual to the family, from the family to the school, from the school to the community, and at last to the largest civic and national groups. It is no more necessary for the child to play with his ball, his stick and his string than it is for him to playfully exercise his other joy-giving functions in sports requiring one or more playmates. The life of the solitary child is necessarily deficient and his development defective in many qualities essential to social life, and we presume, indeed we know, that his joys and pleasures fall short in equal proportion of their fullest possibilities. The same course of reasoning may be applied to the community. That community which neglects the possibilities of communal development and recreation which is aroused by the pageant, the ceremonial and the spectacle falls short of a culture and joyousness which it might possess. The pageant is a unifying, an amalgamating, and a sympathy-breeding function, which comes from the conscious and expressed and even exaggerated union of the whole community in aims and interests, memories and aspirations, spirit and ideals. In one community the pageant commemorates a delivery from the pestilence; in another it celebrates the successful completion of the harvest, the vintage or the cruise; but in each community the same common interest is manifest and the same unifying result is attained.

The ceremonial and the pageant among all people disclose to the thoughtful and discerning the culture and the spirit of the community in which they exist. The beauty and joy-loving Greek expressed his delight in life and endeavor at the Olympic festival; the aggressive and iron-hearted Roman sated his cruelty in the gladiatorial contests of the Colosseum, and the gluttonous

¹ Read before the American Academy of Medicine, Chicago, November 10, 1905.

Teuton or Briton expressed his savagery in the gruesome trophies of the hunt. The national spirit of the Greek, the imperial dominion of the Roman, and the feudal spirit of the Teuton, were equally manifest.

The puritanical simplicity and the intensified individualism of this industrial and commercial age, combined with the scattered settlements, the new surroundings, and the exigencies of a pioneer life, has left America with almost no communal recreation and scarcely a traditional ceremonial worthy of consideration. The hypocrisy of our thanksgiving, the barren and homely insincerity of our Christmas, the gruesome display of our Decoration Day, and the insane, senseless and nerve-splitting fireworks of the Fourth of July, fill out the complement of our national holidays.

The value of the pageant has been well recognized by every organization which has aimed to secure a control over public opinion and public life. The ecclesiastic knows well and has used successfully the spectacle, the ceremonial and the pageant. Among the Romance people, religious life is intimately connected with all social and political affairs, and in the past the church has practically monopolized all social and communal functions. Whether these functions arose from provincial strife or racial prejudice, they have been sanctified as in the Palio contests of Siena by the offices of the church. Almost everywhere throughout the known world some religious ceremonial attends upon the three great events of life: upon marriage, upon birth and upon burial.

The tyrant has always surrounded himself with spectacle and ceremonial, and every political and judicial function takes on a certain dignity and assumes a certain character and puts distance between itself and the world by garb, demeanor and language. The party interests are cultivated with torch-light parades, and the success of candidates and parties by bonfires, barbicues and parades.

The mysteries of our fraternal secret societies are covertly suggested in ceremonials peculiar to each. In one it is the laying of the corner-stone, in another it is the ostentatious obsequies.

Even in our democratic and puritanical society education

takes on from European traditions a scholastic garb for ceremonial occasions, and every opportunity is sought for the pageant and spectacle. The real and well-rooted spectacle of our modern education is the brutal contest of the athletic field.

Not the ecclesiastic, the politician nor the educator has so successfully used the spectacle for his control of the public mind as has the manufacturer and the trader. The most remarkable manifestation of the past century has been the pageant of the international exhibition. Beginning as a provincial display in France, it has been exploited since 1850 as the most potent means of increasing consumption and extending the market, and the little trader has picked up the stranded fakirs and merry-go-rounds and established the street fair.

The educational and social function of the pageant cannot be confined to any one class or age: it has a use for every class and for every member of society. The wonder of the child and his imagination are touched by the color and tinsel and tawdry illuminations as by no reality of life. For the youth the occasion is one of unequaled liberty and freedom from restraint. He attains almost the buoyancy of the savage. For the young adult it furnishes the occasion for prenuptial amenities. For those in the prime of life abundant opportunity is given for the display of success in any and every activity of life. The social, the economic and the political success can be ostentatiously exhibited without the odium of effrontery or vulgarity. Even the aged may receive the scanty satisfaction of an honorable decline. But the extension of the influence of the pageant and the communal festivity reaches farther and cultivates and encourages every joy-giving activity of life.

When we look about us and observe the many public necessities which we enjoy that were almost unthinkable half a century ago, it does not seem presumptuous for us to expect in the future the recognition of the value of dignified, artistic and inspiring pageantry as an essential in communal life, equal if not exceeding in importance public libraries, public playgrounds and public baths. If we consider the possibilities of this communal activity, we may look to the sources which have supplied us with other public

utilities. The hope of an honorable immortality has built up the memorial library in a thousand communities. The schemes of the land-owner and real-estate broker have secured parks and boulevards for a hundred cities. The only festa which we enjoy have been furnished by the efforts of manufacture and trade to increase our wants and promote our extravagance. Our development has not reached that stage in which public activities are moved by public interests, and the public pageant as well as the public theatre awaits a powerful private interest for its promotion and establishment.

IV.

THE RELATION OF RECREATION TO EDUCATION.¹

By R. K. Row, Superintendent of Schools, Berwyn, Ill.

Brief as my paper must be, I wish to consider the subject in a comprehensive way, to consider education as a whole life process, to consider life as activity plus the power of adjustment, and education as a process of reorganizing experience in such a way as to develop a sense of relative social values and to continually evolve the power of controlling the reorganizing process. Then, I wish to consider recreation not simply as a means of renewing energy and exhausted vitality, but in the larger sense of, (1) rest, through cessation of visible activity and (2) as embracing those activities which are pursued without serious intent, mainly for the enjoyment of the activities themselves; in other words, activities which have in them the element of play.

The first aspect of the subject, *rest*, will occupy our attention but a moment. It is a simple but universal law of life that there shall be regular alternations of stress and relaxation, of activity and rest. In plant life the main waves of this rhythm are long, a season of growth followed by a season of rest. Among the lower forms of animal life the same essential conditions prevail, alternative periods of activity and rest in the whole organism. Rest must always be a factor in recreation, but, as we ascend the scale of development, and organization becomes more and more complex and differentiated, we find that new elements come into recreation. Mere cessation of activity is not enough. The nervous system is an organic generating storage battery. When highly organized and differentiated it must find correspondingly differentiated modes of discharging its accumulated energy. Each special form of activity is operated and controlled by special areas of the nervous system. While the nerve cells in certain groups during activity are being exhausted, others are storing energy, becoming charged. In normal sleep the whole system becomes re-charged. During the activity growing periods of immaturity, these processes of accumulation and discharge go on very rapidly.

¹ Read before the American Academy of Medicine, Chicago, November 10, 1905.

This prepares us for a brief statement of the recognized psycho-physical theories of play.

First, the *surplus-energy theory* assumes in the higher forms of life a series of inborn impulses for whose serious activity there may be, for a long time, no opportunity of discharge. As a result a reserve of exuberant energy collects and presses for employment, thus calling for an ideal satisfaction of the impulse in the form of play.

Second, the *teleologic theory* posits a tendency in the organism to practise those activities that will be needed later in life, a means of getting control of the racial inheritance of co-ordinated power and skill.

Third, the *organic-selection theory*, in part at least, includes the first and second. From the random movements of the pre-conscious control period the organism selects those that give pleasure and repeats them. Later, these, and the movements of associates are imitated and the pleasurable activities persist in playful repetition because the organism finds them to be vital, to conserve life, and promote growth and development so long as growth is possible.

Probably all of these theories are insufficient to account for the number, variety, and importance of human recreative activities, but if we accept the related theory of psychology that pleasurable organic experiences promote life, growth and development, while those having a feeling tone of pain tend to inhibit growth and check life processes, it must follow that recreative activities are especially conducive to the development of the organism, because a dominant chord in all forms of play is the enjoyment of the activity itself. But, you may ask, is not work also necessary to development? Yes, and to all except very young children, recreation presupposes work. The more earnest one's serious life, the more completely he enjoys play.

Now let us consider, for a moment, some of the special educative functions of recreative activities.

(1) *Out-of-door games plays and recreations are the best means of physical education.*—There is fuller breathing, more oxygen, increased circulation, more perfect digestion and assimilation,

more active secretion and excretion, freer exercise of the whole neuro-muscular system,—all the conditions which promote physical growth and development. But this is not all. In a large and important sense, education is the growth and organization of the nervous system. Nervous tissue grows through use in the direction for new use. Every effort to perform a new act tends to new growth and organization in the nervous system. In play, conditions are most favorable to these morphologic changes.

(2) *The best forms of recreation involve considerable intellectual activity.*—Many games are keen mental contests. Success depends upon alertness and selective attention, upon the organization of knowledge, upon quick insight and ready judgment, upon prompt decision and action. When the demand for intellectual activity subsides, the game dies a natural death. Many forms of play activity are in the nature of experiment. Children, and others who have not lost the play spirit, move things about, test them, to see what will happen; thus knowledge is made more definite and real, an infinite variety of revealed conditions have to be interpreted, and, to the individual, countless discoveries are made in play.

(3) *Coöperative games promote social education.*—They develop the qualities of leadership, self-reliance, self-control and, at the same time, the spirit of coöperation in social groups. To participate in the activities of others, to receive the stimulus which attends collective activity, to share the emotion that stirs large groups, to widen one's circle of interests and desires, to feel oneself an efficient factor in social organizations—all these things a child gets in genuine play, and an adult in his sports and recreative gatherings.

(4) *Recreation is a very large and vital factor in esthetic education.*—From studies in anthropology we learn that one of the most primitive forms of art is the dance, and when we turn to our children we find that many of their favorite games are distinctly rhythmic, simple forms of dancing. But rhythmic movements are also the first evidences of appreciation of music, and the best means, in the early stages, of developing that appreciation. Again, music is simply a form of play with the "concord of sweet

sounds." It is the use of sounds for the expression of esthetic states. As in other pleasurable experiences the satisfaction realized in the activity impels to its continuance. The function of the drama as a form of recreation is indicated in its common name—play. It is play in a sublime form, the representation of life. The poet plays with ideas. The sculptor plays with form. The painter plays with color and light and shade. Not one of these activities is artistic until it is exercised with a degree of the freedom of play.

(5) *Recreative activities have also important ethical functions.*—Whatever promotes physical vigor and pleasurable feeling tone in the organism must tend to develop moral stamina. Moreover, the full measure of self-expression, that is, the genuineness in play; the self-reliance; the courage; the spirit of sympathy and coöperation; the necessity for *fair* play; above all the habitual pre-occupation in activities that are right, pure, and wholesome cannot fail to make for righteousness. As Caesar distrusted the lean man, I would distrust the boy or man who does not play, if he has a chance.

Forms of recreation should vary according to the age and stage of development, individual tastes and temperament, social conditions and usual occupations.

For the young and immature, plays and games should involve only few simple factors and usually but few players, because complexity and large numbers are over-stimulating. The competitive elements should not be prominent because young children lack the poise and self-control required in rivalry. Physical activity, rhythm and dramatic representation are always altogether good and wholesome.

At a later stage recreations involving more rivalry and more coöperation should gradually displace the simpler forms. Still later, personal tastes, social environment and usual occupation will largely determine the selection of recreations. We will not permit even our family physician to prescribe for us in these things.

In recreation as in everything else there is danger of extremes. Some seek excitement: sensational literature, brilliant social gatherings, intoxicating drink, sensational theatres, sensational religious services, gambling, automobile racing, fashionable

resorts, all these are about equally unfavorable to genuine educational progress. On the other hand, men and women, whose daily life is a monotonous routine of physical activities, are quite often too prone to seek their only recreation in lethargic rest. Such persons need intellectual and esthetic stimuli in order to keep the whole being alive, active, and capable of growth.

Since play has always been an important factor in race development, very many forms of recreation have become a part of the race. Among the different peoples they may take different forms but, in essence, are the same. For example music, dancing, the drama; games with balls, tops, kites, cards; hunting, fishing, boating, riding, driving, etc., all belong to the race. Sometimes the spirit of primitive sports persists in civilization. It seems inevitable that the anthropologic historian of the future will class American football with the gladiatorial contests of ancient Rome, the bull-baiting and bear-baiting of 18th century England, and the Spanish bull-fighting of the present time. Not only will he probably make this classification, but he will also point out that this national game, equalled in brutality only by the gladiatorial contests of pre-Christian times, seems to have had some religious significance, because among the colleges which included those especially endowed to teach Christianity the great game of the year was reserved for the day set apart as a day of national thanksgiving to the Christians' God for his provident care and beneficence. He may even add that the extreme devotees of the game persistently revived the very ancient rite of human sacrifice.

Among those persons having most leisure, attempts are made to vary old games by the introduction of new conditions and rules, and many forms of recreation come and go just as do fashions in dress. We have all played ping-pong, tiddly-winks, and pit at least once, almost any one will do almost anything of that kind once. We smile at the enthusiasm with which the fat man of sixty-five carries his 250 pounds about the golf-links for one season. The fact is, all these things are good. They waken new interests, and keep men and women striving to do new things, to acquire control and skill in new directions, and thus are factors in continuing the educational process of the individual and of the race.

V.

RECREATION AS A SOCIOLOGIC FACTOR.¹

By DONLY C. HAWLEY, M.D., Burlington, Vermont.

The saying, "All work and no play makes Jack a dull boy," is an expression in homely terms of the generally recognized fact that the whole of life is not summed up in the word work.

While work is necessary and ennobling, and is the law the universe obeys, refreshment of the strength and spirits after toil is likewise a necessity, which finds expression in the natural cravings of the social instinct and in the general desire for diversion and amusement. The social instinct demands satisfaction, and will find it in recreation and amusement, which is either beneficial and uplifting, or injurious and degrading.

Social life in the slums is as much a reality as social life among the "Four Hundred," and the saloon, the lodge-room and the club, whatever its status, supplies a social demand. "All sorts and conditions of men are alike,"² and "the things that make us all alike are stronger than the things that make us different."

In attempting to bring about the social betterment of the working classes, of the very poor and of the criminal and vicious elements in any community, the first and greatest need is healthful recreation. One of the great sociologic needs of the day is admittedly a solution of the so-called "labor problem," but of equal importance and hemmed about with greater difficulties is a solution of the leisure problem.

"Economists have been trying for a long time to discover how best to employ the energies of men. Ah, if I could but discover how best to employ their leisure! Labor in plenty there is sure to be. But where look for recreation? The daily work provides the daily bread, but laughter gives it savor. Oh, all you philosophers! Begin the search for pleasure! Find for us, if you can, amusements that do not degrade, joys that uplift. Invent a holiday that gives every one pleasure and makes none ashamed."³

The tendency of the times is toward shorter hours of labor

¹ Read before the American Academy of Medicine, Chicago, November 10, 1905.

² *Besant*.

³ *Emilé Souvestre*.

and a consequent increase of leisure. Working hours afford little time or opportunity for scheming and plotting, for the development of sordid tastes, and the sway of degrading impulses.

Unemployed and improperly employed leisure, on the contrary, furnish the time, the opportunity and the leaven for them all, and are especially in the masses a constant source of danger.

A solution of the sociologic problem of bettering the condition of the great masses of the working poor, and of the poor who are above work lies in leading them upward from common and base things to devotion to ideals of duty and of patriotism, to comforts and inspirations and joys they know not.

How may this be accomplished? In part, at least, by giving them the things that make others happy. In large measure by controlling their leisure hours and helping them to make these both pleasant and profitable.

In many of the larger cities, *e. g.*, London, New York, and Chicago, effort is being made by such organizations as Toynbee Hall, Social Settlements, University Settlements, and Hull House to carry social justice to the great masses of the poor and down-trodden.

It is not the province of this paper to point out specific methods of work along these lines, but rather to record the belief that one of the ways of bringing about the social betterment of the masses is by providing proper channels for the expression of every social want and every social sympathy.

At the present time the social life of hundreds of thousands of the wage-earners in the large cities is dominated by the liquor-seller and the saloon, and the furnishing of successful substitutes is a difficult problem. The saloon is a most democratic institution, acting as a social center, and answering a social demand. If we can furnish places offering all that the saloon supplies as a social center, and more, and if we can thereby get in personal touch with the swarming masses of the poor, the ignorant, and even the vicious, we may hope to awaken their finer natures, to lift them up, to place them on their feet, and to help them to stand.

To do this we must give them something better than they can find in the street, the saloon, or any accustomed resorts. We

must give them sympathy, friendship, companionship, cheerfulness, comfort, games of chance and of skill, the manly sports, reading, lectures, the theatre, painting, singing, dancing—everything that brings joy and happiness to ourselves.

The cravings and esthetic hunger of the miserably poor make them more miserable and dissatisfied. Because they are robbed of what they perhaps know not, but of that which belongs by right to their souls' enjoyment, they become morose and revengeful. Experience is teaching us that by concerted personal effort we may bring the blessings of culture and of refinement of life to many of these; that we may direct their energies, teach them self-restraint, cultivate a taste for the higher good and foster a nobler personal and civic life.

Admitting the need of effort to improve their economic conditions and to transform their miserable lodgings into places worthy to be called homes, experience warrants the belief that if we can control their leisure by interesting them in methods of diversion that are innocent and uplifting, we shall have taken a long step in the direction of accomplishing these objects, and of making their lives happier and their citizenship to a higher degree worthy the name.

In London is an institution with the motto "Save the Boys." In this phrase is a germ of hope for the future. If we can improve the conditions and surroundings of the children of the poor, and beside giving them educational and industrial advantages can control their amusements and recreation, we shall have solved in large measure an important problem for the next generation, as formative processes will in large measure render unnecessary those which are reformatory.

This applies with force to children in all classes of society. Improperly employed leisure is for them the greatest source of danger.

Parents should recognize this fact, and the necessity of furnishing at home, and in properly conducted places, amusements and recreation which shall be satisfying, and at the same time uplifting and educational. Teachers everywhere should also be made to realize the importance of this question, and to use the

opportunities which their positions afford in influencing the children under their care to seek recreation which recreates and amusements which will bring the most perfect joy.

DISCUSSION.

Prof. W. N. Hailmann, of the Chicago Normal School, by invitation :

Friends:

My teacher heart is filled with gratitude that the profession of medicine, so fully established in public appreciation and esteem, should take so deep an interest in matters of education, in the work of another profession in the making for so many centuries and still seeking to gain supremacy in the performance of its duties. In former days, when earthly life was deemed worthless except as a preparation for life in a revealed or hoped-for hereafter, the teacher was controlled by the clergy. When, later on, life upon earth began to assume a value of its own, the control of the school by the clergy began to wane, and in many communities their abdication became complete. I do not covet control of education by the profession of medicine; but I do hail its aggressive interest as a harbinger of progress, as a further liberation from the shackles of tradition into the freedom of rational living, as the dawn of the day when education, too, shall be guided by scientific insight and by the truly spiritual elevation that ever follows in the train of victorious science.

The discussion of the problem under consideration has been so thorough that little remains for me but to contribute my mite of approval, possibly to single out some one of the points presented in the hope of further urging you to make it your serious concern in efforts to bring it to public attention and to compel its consideration by parents and citizens.

For this purpose, choice is difficult. I might select the high ethical value of social play; the dangers that come to adolescent youth from passionate indulgence in some particular play, such as football or the show, the street corner or the short story; the importance to future generations of public playgrounds and usable parks; the pernicious influence upon youth of the insolent prominence given to not infrequently degrading amusements of adults; the perils that lurk in precocious club and fraternity life; the menace of demoralization—physical and mental, intellectual and ethical—of immoderately prolonged vacations; certain unhygienic and unpedagogic monstrosities in courses of study, forced upon the school by a public that conceives it to be the exclusive duty of the school to prepare properly geared wheels and cogs for the commercial and industrial machines of the day; and so on indefinitely.

But I limit myself to the less pretentious theme of intermissions for play and rest in current school practice. Schools are still found that drive or cajole children, in more or less constrained positions, for five or six hours

through "courses of study," with little more than the traditional noon recess of little more than an hour and one ten- or fifteen-minute intermission in the forenoon. In some instances, the noon recess is still further shortened, so that the traditional five hours may be squeezed into one session. Where intermissions of five minutes are granted between recitations, these are not infrequently occupied with calisthenic exercises in the aisles, in which the child continues under the strain of prescriptive guidance and is robbed of the freedom of his instinctive impulse to rest or play, to gossip or loaf, and thus restore needed equilibrium in his life activity.

Individual discrimination is unpopular; "my child is as good as any child," is the slogan of the ill-advised, fond parent. Hence, the right of the nervous child, of the unusually attentive child, of the dull child, of the child exposed to great fatigue by a long tramp to school or by home chores, of the underfed child, and often even of the indisposed child, are ignored largely under parental pressure; and we are afforded the pathetic spectacle of schools filled, not with actual children, but monopolized with the impossible average child.

The fact quite conclusively demonstrated by Wagner that constrained gymnastic exercise makes as high demands upon attention as other studies and does not differ from them in fatigue effect, has not yet entered public consciousness. The fact that during the fatigue period of childhood, from seven to nine, the period when the heart grows, children need longer and more frequent periods of rest and mild free play; and the further, perhaps still weightier, fact that the prepubertal period comes upon girls earlier than upon boys, and that, therefore, at this period girls and boys require different treatment as to rest and play as well as work, has not as yet reached the tax-payer, nor therefore, the average school.

Our very schoolhouses, of which we are so proud because of their size and other magnificence, furnish proof of disregard of the needs of childhood. Kindergartens, primary and grammar grades are housed in the same splendid knowledge-factory, and frequently, if not usually, subjected to quite similar treatment as to periods of recreative rest and free play.

It is needless to indicate to a body of physicians the pathos of these conditions, rendered the more pathetic by the fact that it is quite widely recognized in pedagogic circles, but that these find themselves sadly handicapped by hindrances of tradition, lack of knowledge and appreciation that rule so large a portion of the public. Your interest in these matters is to these circles, I am convinced, a source of hope and prospective joy, for you, more than any other profession, have opportunities to instruct the home and to touch its heart authoritatively on these weighty questions, and thus, by liberating childhood, to aid us in our efforts to do our work more and more in accordance with our insight, more and more effectively to make education what it is meant to be.

Newell Darrow Gilbert, Superintendent of Schools, DeKalb, Illinois :

It is a matter of no small congratulation to a school-master that he should be invited to exploit the more intimate matters of his craft before a body such as this. That you should turn from the immediate, absorbing questions of specific investigations by your guild to consider topics more closely germane to the teachers work betokens, I take it, an increasing consciousness of our social solidarity; a consciousness that the school is not the school-master and the associated school-mistresses dealing with the traditional child after a traditional fashion to induct him into traditional social modes; but rather that the school is the body social bringing itself to bear on infancy in such wise as to project the individual careers, and to so project these careers that not only will the individuals realize their personal ends in attained success, but also that these careers shall distinctly set forward social evolution toward its goal.

This conception of the school admits no consideration of education less comprehensive than that taken in his discussion by Superintendent Row: "Education a whole life process." This conception necessitates the scientific approach and puts one in the attitude for it, for in this view no body of experiences is without significance and one is compelled into the various fields of experience to inquire what the especial significance of each may be, what it tends to contribute or may be made to contribute, to the end desired. This is but to say that we are made to realize that we are under law; that law is meant to be manipulated by intelligent obedience to further beneficent ends. It is a brief step from this position to John Fiske's conception that natural selection—blind, indirect, wasteful—must give way to human selection—intelligent, direct, economical, effective. Education must become a conscious, definite effort to bring selection to bear to inbreed those qualities—physical, intellectual, spiritual—that contribute to survival. A winning race must be a race of winners.

It is this conception that gives purpose and meaning to the discussion of such a topic as is before us. What is the meaning in natural economy of the instinct to play? How does it fit into the scheme of individual and racial development? What scope must be given to it in any scheme of education? How may that scope be amplified and the results more definitely controlled? Whatever the answers to these questions may be, their effective realization lies in education, home and school and community at large.

The plays and games of children are creative rather than recreative. Children under normal conditions can scarcely be said to engage in what we know as work. Work as such does not have its end in itself; we do not do work for work's sake; we work to realize some ulterior interest. A child's interests are immediate, imperiously so, and lie in the activity itself. Hence, the immense importance of the pedagogical doctrine of interest. Recreation in the ordinary sense has slight place in children's experience. Play, with

its strong motives, its exhilaration, its stimulus to the putting forth of the powers of the self, has a very large and wholly essential place. Play is spontaneous and is nature's scheme to bring the self into contact with the environment, material and social. The reactions organize the self, stimulating growth, nervous and muscular; developing the various areas of sensory impression and motor response; and establishing the relations between these areas. This is of the most fundamental significance as to the range and variety, the type and the vigor of later mental and spiritual powers. As Mr. Row has put it: "Education is the growth and organization of the nervous system." The unity of life in the individual, the inseparability of the physical, mental, and spiritual except in philosophic thought makes such a thesis carry a long way, implying very strongly that a meager infancy and youth may mean a relatively limited manhood, and implying no less strongly the possibility, nay, the certainty of "life more abundantly" when the conditions environing infancy and youth are rich, and true to the laws of physiology as you physiologists are teaching them to us. I was strongly impressed by a remark by Dr. Herdman to the effect that in the man of excessive or exclusive habits of work "many channels of recuperation were never created." This surely points on the side of physical health to the untold value in adult life of abundant and varied play in childhood and youth. Does it not also carry equally strong implications concerning mental vigor, resourcefulness and sanity in the great strains of business and professional life?

Out of the many educational bearings of play I enumerate three or four, necessarily with little or no comment: Undoubtedly, consciousness arises out of motor activity. Just as certainly, to my mind, self-realization comes in the course of play, as the child imitatively takes on the movements of others. Unconsciously doing as others do, he presently perceives himself as doing as others do, knows that he can, and enjoys the knowledge. For several years this power of imitatively taking on activities in progress about him gives character to his plays. There should arise here in the child's experiences in plays—and I have seen it again and again—an element of self-appreciation, a revelation of personal capacity to equal and even to excel others; an impulse to venture, and an access of the necessary courage to make the essay—initiative, the tap-root of manly will, of executive power.

Another most significant product of play is the large body of imagery taken on—imagery in terms of which his most intimate thinking will be done life-long; imagery which will give content to the words of the vernacular, the home words, the words of the inner life. I wonder if much of the knowledge which we grown-ups call axiomatic does not lie implicit in these childish experiences of play. This imagery has the dynamic quality which tends to discharge in practical activities, the instinct to bring things to pass, the instinct which gives vitality to a "genius of accomplishment."

Again inherited racial instincts are mediated, set free, and given scope in plays. In this way the child is able, again quoting Mr. Row, to "get control of his racial inheritance." But, more, to the educator there is revealed

in play the *nascent periods* of these instincts and he is guided to choice of "good convenient" for the developing boy. Thus the instinct is grown into the personality as a permanent capability.

Games, or purposeful plays, involve the organization of several players, each of whom has a part to fulfil. Surely games are most admirably adapted to express social impulses and capacities and so to "promote social education." Mr. Row has enumerated many of the essential personal and social qualities that inhere in games. The reaction on the growth of personality I take to be strong and genuine. The game is life of one's life. The value of self-control, of generosity, of self-subordination, of heroic endurance for the sake of the group of players and the larger community group of which the players are representative—the value of these qualities is apparent, is real, they are the game. Personality grows by individual choice and appropriation. The qualities that make a fellow fit stand out in the game. They are taken on in rather crude fashion it may be, but are real just the same, and they will get their refinement in the more serious, less exhilarating game that we old-fellows call life. We are able to realize this when we stand with Wellington on the football field of Eton College and hear him say, "Here I won Waterloo." It thus becomes apparent that the law of selection works actively and effectively on the playground. And the social order seeking in education to modify and direct selection, must take the hint.

In view of this splendid possibility with what feelings must one view the practical prostitution of some of the noblest games to purposes of advertising the institutions the contesting teams represent instead of the devotion of the splendid equipments now possessed by these institutions to the exploitation and development of the manly powers of every college-going youth in open, hearty, generous competition with his mates. Even this leaves unsaid the demoralization of the fellows on the side-lines. Not the least serious consideration here is the reaction on the High Schools and even the Grammar Schools, who imitatively take on the college attitudes and methods and are sometimes even directly led into some of these objectionable methods by young collegians who act as coaches.

I trust you will pardon the digression.

To conclude, games reveal necessity for *variation*. They suggest not only that it is possible to vary, but that to favor excellence, one must better the former mode. In this ability and impulse to vary with reference to increased efficiency and economy lies the possibility of individual and racial progress. This discovery should be early made, and should be used definitely by teachers to foster inventiveness and initiative, courage and well-balanced adventure, not only from personal but from social motives—the individual seeking to exalt his group by his insight, foresight and prowess.

It must not be inferred that I hold that in games alone may these elements of the educational process be found and utilized. But they are in games and plays, and since self-activity is essential to the educational value of any process employed in the training of children, it must be that through several

years, any prescribed task must take on the play aspect; its end must be immediate, it must have a strong social reference, its motive must be found in the child's impulses and tastes.

Evidently there is no slight scientific basis for the old saying, "All work and no play makes Jack a dull boy," foredooming him to inferiority, to relative ineffectiveness in many of his ampler, better possibilities. It is equally true that "All play and no work makes Jack an idle boy." It is not unknown that a youth brings out of excessive devotion of energy and time to games, the indisposition and the incapacity to sustained effort, lacking the exhilaration of the game, the stimulus of the "rooters" on the side-lines, and the applause of the grand stand. It needs other motives than these for the serious tasks of life.

Dr. H. F. Kallenberg, of the Institute and Training School, Y. M. C. A., Chicago.

As I listened to the reading of the several papers I noticed that one phase of the subject in particular was mentioned by every speaker, *viz.*, the physiologic value of recreation. This is to me a very important phase of the subject which I should like to discuss.

The body is made up of millards of cells and the value of any particular form of recreation depends upon its effect upon these individual cells. That form of recreation which will reduce the vitality of a single cell is bad, and that form which will increase its vitality is beneficial. The vital relation between mind and body is recognized by all. We cannot discuss psychology nor sociology without discussing physiology. We have therefore physiologic psychology and physiologic sociology. What we are mentally and socially depends largely upon what we are physically. The physiologic aspect of recreation is therefore a most important one and recreation of a physical nature is not only of great value, but is absolutely necessary for the well-being of the physical life.

The unhygienic conditions surrounding city life, the tremendous pressure under which we live, the modern inventions which make it possible for a man to do a tremendous amount of mental work with the minimum amount of muscular activity, the frantic efforts to get relief from our strenuous life by means of all sorts of amusements and dissipations, are making serious inroads upon the physical life of the people.

We are beginning to realize that the only way to preserve the future as well as the present national life of our people is to preserve the physical life. The recognition of this fact accounts for the increasing interest in physical training. Our public schools are more and more introducing physical training into their courses; every college of any standing has its department of physical training; churches and social settlements are conducting gymnasium classes; the United States government has authorized the erection of gymnasiums at various army posts throughout the country; quite a number of cities are building municipal playgrounds which contain paraphernalia for all forms

of indoor and outdoor physical exercise; practically every Young Men's Christian Association has its gymnasium and physical director.

Just as we have pointed out some undesirable physical conditions in our city and national life, so may we point out certain undesirable moral conditions as evidenced by the spirit of graft and corruption which is so prevalent in almost every phase of activity in which our American people engage. Perhaps the most valuable contribution which physical training can make to our national life is to inculcate the spirit of fair play and clean sport into the lives of our boys and young men. If we teach our boys and young men to play fair, to do the square thing in athletics, they are more likely to play fair and do the square thing in business. It is the conception of physical training as a means of developing character and manhood that has induced the Young Men's Christian Association to spend much time and energy in developing its physical departments.

I do not believe that the main function of the medical profession is to patch up broken-down bodies and restore health, but rather to so educate the people that they shall live right hygienically and thus escape many of the ills to which the human body is subject—in a word, to preserve health. Dr. Frank Allport, of Chicago, in an address before the Indiana Board of Health School, December, 1903, made the following statement: "Prevention is possible a thousand times, while cure is possible but once."

It seems to me that the American Academy of Medicine has two functions to perform, first, to promulgate interest in healthful forms of recreation that will increase the vitality and resisting power of individuals; second, to see to it that more attention is given in medical schools to instruction in hygiene, the physiologic value of play and the physiology of exercise. Very little or no attention is given to the latter two in our medical schools. Very few medical students know anything about the value of exercise or how exercise should be given, its indications and its contra-indications, yet we find among the various treatments suggested for diseases that exercise is almost always mentioned.

In our better schools of medicine the handwriting on the walls seems to read: "Prophylaxis," and again, "Prophylaxis." To my mind there is nothing that will make a greater contribution to the physical life of the people than those forms of recreation which involve more or less physical activity under right conditions.

Dr. Leartus Connor, of Detroit, Michigan :

Were every part of the body exercised rhythmically, this question would vanish.

Bodily exercise may be classed as work or play differing in that work is exercise for some ulterior purpose and demands the will force, while play has no object beyond the simple activity a pure spontaneity.

I was impressed by a remark of one of the speakers this morning "that recreation was a forgetfulness of self." In such forgetfulness there is an

absence of unequal tension anywhere in the person—every organ, every mental faculty, every moral sentiment harmonize with every other—in short unselfish activity is its own reward, is always play. In every correct life the activity of work is being constantly transformed into that of play—so that the work of fifteen becomes the play of twenty. I am sure that a game of modern football would be work to our friend Dr. Gifford while the extraction of a cataract would be play.

Every intelligent success in life results from the transformation of the largest amount of work into a corresponding amount of play.

The reason that more fail in thus transforming work into play is lack of brains and heart behind the work. Too commonly persons are like animals in a treadmill—pushed behind and pulled from front—working from sheer external forces. They do not comprehend their work, its breath, or depth, its relations to other work, to the past, present, or future caring not whether it make the world better—so they have no play from it.

Were children educated at home, in school, and church to forget self in service for others, increasing joy would be theirs with the passing years.

The origin of life's degradation, greediness, weakness is from failure to aid in making others better. If little children can be taught to think of others and to work for them, they are sure to continue the habit through life, and so store up treasures of play in geometrical proportion. If we want play we must work sympathetically with the world.

As a recreation baseball as now played is a failure—because, its actors, and promoters all work for money. It stimulates the gambling habit, and the determination to "beat" at any cost is antagonistic to genuine play. It ranks with gladiatorial exhibits and Spanish bull-fights. It might be transformed so as to promote the wholesome development of good citizens and the indications are that such changes will be made.

Dr. H. B. Ward, of the University of Nebraska :

While I was deeply interested in the subject, and hoped to add a word, I felt I had lost my right to that privilege by being tardy, and I am indebted to you for giving me the opportunity now.

The subject of the relation of recreation to education is one which has been engaging the thoughtful attention of every man connected with every school of any degree. It must attract also, the full and careful attention of every citizen in the country, for it is perhaps, more than all others, the dangerous element in our educational system to-day.

If there is one thing prominent among the differences between the modern university and the college of half a century ago, it is in the part played by physical training. Athletics, physical exercise, was practically unknown half a century ago, and the older student was a man who cultivated a dislike for physical effort and had a poor physique. To-day, the college man is a man of real physical vitality.

You will agree with me, I am sure, that among the elements of success in

the best sense in modern life, health stands high. The man who has the best training intellectually, if he has not the physical vitality to carry through the work he has undertaken is a failure. That being the case, physical training comes to be an important factor in connection with any institution for education, and must be considered absolutely without prejudice. We must not allow ourselves to be carried away by hostility on the one hand and on the other hand we must scan closely the features connected with any form of athletics.

Let me call your attention to the fact that in the school communities, whether the lower school or college, there are represented several different types of men. That is more true in the college than in the lower schools, as by the time a man has come to be a college student, he has reached the physical development which leaves the one man a weak frame and gives the other man a strength that he is conscious of every day and hour; he knows that unless he controls it, it will control him, and that too often in some cases to his intellectual and moral undoing.

The college man notices that different types of athletic recreation appeal to different classes of individuals. It is most striking to see how one class of men constitute the football team, the second team and all those interested in that feature; another class of men is found in the baseball team; another in tennis and track athletics, and so I might go through the entire list. Thus while you may occasionally find an all-round athlete yet, in the main, it is one type of man—one type of physical development—one type of physical make-up that is attached to one game and another type to another game.

Much has been said against football and rightly said in regard to the unfortunate features of that game. Yet let me call your attention to the fact that much of this criticism is not directed clearly against football but is due to entirely different causes. Partisanship is not confined to football. In New York I have seen the players of the Philadelphia baseball team almost mobbed by the public that was witnessing the game. All have seen similar occurrences in other places. This intense partisanship is a characteristic of American life and it manifests itself on occasions whether in football or in anything else involving competition.

In the second place, the revelations of the business world have shown us that dishonesty and graft are not confined to college circles. Graft exists in college circles far more widely than football. If you strike at the game you do not strike at the root of the evil; you are not dealing with the system. Eliminate those things and you have left perhaps in the game certain other things in which it falls short of ideal. But what shall be put in its place?

What will you give the man of powerful physique; the man who feels the hot blood pulsing through his veins; who feels the strength that lies in his physical power? Will you ask him to go into the gymnasium and indulge in some weak gymnastics? The man of powerful physique must have something that will satisfy his physical nature.

Do you say he exercises it in an unfair way in football? I know of no

charge that I should want to refute more positively than that one. Nine out of ten college men are perfectly fair. In any class of people that might be gathered together you would include some unfair individuals and it is the same in the college classes of the country. College men are fair and play fair—not all of them, but the vast majority of them, and college men in general do not condone in any way the disreputable practices which certain individuals have brought into the game. It is between the majority a fair contest of strength just such as you will see between two teams in a tug of war, where each one is bound to gain the mastery of the other; and college football, under reasonable guidance, will be just as fair as anything can be. For the evils the public is primarily to blame. Sensational newspapers are to blame because they have said things which are not true; they have over-estimated the importance of the game and the players. For this element, the college and the game are certainly in no way responsible.

Let us recognize the fact that heavy athletics do appeal to a definite class of men, and within that class of men are those who if given no such vent for their surplus energy are bound to exercise it in some other direction. Go back twenty-five years and see what those men did. I want to say to you that football has tended to reduce the amount of drinking, the amount of smoking and the amount of intemperance in college circles to-day; and if you renounce it, you must put in its place some satisfactory exercise for the man with a powerful physical frame.

The worst thing for college or public man is that which Dr. Hawley referred to so distinctly as "*improperly employed leisure*." Is the college man to spend his time smoking, drinking, wasting it away or, is he to use part of it in recreation fitted for himself, which will give him the vigorous body to carry out the demands of the modern world? Statistics of college football played under proper supervision have not shown a single fatal injury in the course of twenty years. There has been only a small percentage of injuries sufficient to cause the person injured to lose one month from his college work.

Shall we remove all danger from games? Let us do away with riding, skating, boating. The number of people sacrificed through these is relatively greater than through football. Let us consider rather the possibility of getting at the root of the evil. Can we not remove from football and from all other games also, the professional and the low spirit which pervade them? The English student regards every college man as a gentleman and accepts only the participation of such in college sport. Shall we have the same spirit in this country?

Let us then look towards the development of fair play and in that way, even football will have a factor most important to the physical man; and let us unite to drive from the college communities those who are associating with them the unfortunate elements of unfairness, dishonesty and graft, and other manifestations of lack of character. Let us strive constantly and earnestly for the highest type of manhood in our youth, remembering the importance of physical vigor and also the necessity of correcting every evil

by eliminating the cause and not some one occasion on which it may manifest itself.

Mr. R. K. Row, closing.

I just wish to say that you owe to me that splendid speech which you have just heard. I think it was some remark which I made that called it forth. I may supplement the brief statement I made this morning in regard to athletics, by saying that, I, too, thoroughly believe in vigorous college athletics. I believe in football. What I said about football this morning was directed against the extremes of American football. I think that extremes that are not to be defended, have developed in connection with that game in America. I do not believe Dean Ward defends the extreme features of that game. He says that is only a system of conditions that prevail in college athletics circle. Granted it is only a system of social conditions, I think we have a right to regulate, to some extent, college athletics. This is my whole position.

I would not like to see football abolished from the United States. I think it is a magnificent game, but I do think it has features with which we could well dispense and, at the same time, lose nothing that is of real value.

One other point. Reference was made in the discussion to the fact that men who engage so strenuously in the serious affairs of life that crush out men, dry up men and atrophy men, lose the disposition for recreation, so that, when they feel that they have time; when they have made money enough; have succeeded well enough in commercial enterprises; they have no interest, no incentive to engage in real recreation. The man who has spent forty or forty-five years of his life in piling up dollars then goes out to play golf; he is trying to regain his health, his life by working at golf. He does not have the play spirit and does not get much out of it.

It is a part of my plea, that we should preserve this spirit of play. We say, "we cannot teach an old dog new tricks." The reason is, the old dog has forgotten how to play.

On the other hand, the emphasis upon semi-professional athletics in our high schools and our colleges, with a certain class of young men, tends through so many years of their experience, to set athletic habits so that they are incapable of taking up the real serious affairs of life as they should—that is, athletics become to them in three or four years of high school and four years at college so much a part of their life—in a way, their profession, and they are just as much unfit for the real serious activities of life as though they had neglected athletics altogether.

But, the subject is too large; we cannot possibly cover it in brief meetings of this kind.

THE MEDICAL FEATURES OF THE PAPYRUS EBERS¹.

By CARL H. VON KLEIN, A.M., M.D., Chicago.

This is an age of inquiry in researches and excavation with a constant craving for some new development to assist us in our studies.

The last hundred years is the Niobe of civilization, not only in inventions and productions, but in the remarkable revelations which have materially assisted us in the wonderful development in science. However, whatever we have done to advance the history of civilization was not done by an easy task.

When we look through the magnificent works of discoverers and pioneers, the fruit of hardship, trial and labor, we can not fail to be infected with some of the enthusiasm which animated those who were endowed with superior intelligence and the gift of knowledge to bring forth hidden treasures from the inmost bosom of the earth, and to transmit them to future generations. Of one of these it may well be said: "From the Orient to the Occident," great be thy name (George Ebers).

The Anglo-Saxon nations, though renowned for deep thinking, and philosophizing in every branch of science and art, can not boast of a scholarship in bringing forth the first literature of the science of medicine. A third of a century has elapsed since George Ebers revealed the pages on medicine which were written some seven thousand years ago, and which were concealed for nearly four thousand years between the legs of a mummy. With the assistance of the learned Ludwig Stern and other Egyptologists, Ebers published the fact that Hippocrates of Cos, who for twenty-three hundred years has been known to the world as the "Father of Medicine," and as an original observer, no longer possesses this distinction. It has been wrested from the ancient Greek by the discovery of this papyrus of a date so remote as almost to place Hippocrates within the ranks of modern physicians.

However great the appreciation we may manifest, it is but strictest justice to do homage to the zeal, the remarkable ability

¹ Read before the Thirtieth Annual Session of the American Academy of Medicine at Chicago, Nov. 10, 1905.

and indefatigable activity of this German scholar, whose name is attached to that elaborate work, the "Papyrus Ebers."

The revelation of this important document merits assuredly all praise. In the Ebers Papyrus we have a monument of ancient culture before us, whose medical and historical value is inestimable, as may be seen from the description of its contents.

In this compilation we have the most important medical treasure of the Egyptians before us, in a more complete form than any other known work. We learn much, too, of the anatomic, physiologic and pathologico-anatomic conception of that time. Furthermore, it gives us information concerning the methods of the examination of a patient and diagnosis of the Egyptian physicians, of methods of teaching and learning, as well as of the medical standing at that time.

DISCOVERY OF THE PAPYRUS.

No better history can be attempted than the one given by the illustrious Ebers¹ himself, which possesses all the characteristics of a romance.

In the winter of 1872-73, George Ebers and his friend, Ludwig Stern, of the University of Leipsic, spent several months at Thebes in quest of rare documents. For some time the two scientists made their dwelling-place in one of the tombs of Abd-el-Gurnah, and associated daily with the Arabs of Luxor. A wealthy citizen of that place showed Ebers the antiquities which he, little by little, had obtained from a fellah, on the other side of the Nile. One day he exhibited one of those texts that are known under the name of "shai-en-sensen," and a wooden Osiris statuette in which a papyrus was well concealed. As an Arab did not trust himself to unfold the perishable manuscript, Ebers bore in mind the "shai-en-sensen," and let its high-priced possessor know that similar texts known had been found, and that he could not consider its purchase without seeing the contents of this papyrus, but that if he had anything really valuable or rare to offer him, he would not hesitate to pay him well for it. The next day the Arab sent for Ebers and took from a tin case a well-preserved papyrus roll. According to the statement of the Egyptian

¹ "Papyrus Ebers," Vol. 1, Leipsig, 1875.

possessor, the papyrus was found in a tomb in the so-called II Assiut part of the necropolis of Thebes, between the legs of a mummy. Since the finder of the latter was dead, it was impossible to refer to the exact tomb that formerly contained the treasure.

The costly manuscript was unfolded and on close inspection Ebers made the startling discovery that it was a document of great value and in an unusual condition of preservation. Ebers says he can with difficulty describe the impression that the precious delightfully written and undamaged memorial made on him. The first lines on which his eyes fell belonged to a fragment of a calendar that he had known for a long time. This little document, so very important to the Egyptian chronology, was years ago shown to the renowned Egyptologists, Dümichen, Naville, Brugsch, Eisenlohr, and in 1870 to Ebers himself, in a copy belonging to a Mr. Smith, an American inhabitant of Luxor, who maintained that he was the possessor of an extensive medical papyrus. Because of an affection of the eyes contracted while copying inscriptions, Ebers could not study the Smith copies; hence Professor Eisenlohr, of Heidelberg, succeeded in obtaining a drawing (by means of tracing) of the fragment of calendar which was then regularly advertised in a periodical devoted to the Egyptian language and archaeology, but without success.

Outside of the already-mentioned fragment of calendar, not a line of the papyrus was known. Mr. Smith claimed to have possessed a roll from which he had copied the fragment of the calendar, while, in reality, he possessed only a copy, which was the product of his own handwriting.

Thus Ebers knew the true possessor of the precious memorial, and he resolved from the first to obtain it. The required price was high, but not higher than that paid for less handsome papyri. The same winter an Englishman of the British Museum was traveling through Egypt, and being aware of the treasure at Thebes, intended to purchase the same from Mr. Smith, whom he believed the true possessor. Ebers longed to possess the document himself, but had not the means to meet the demands of the owner, who was not altogether aware of its full value.

However, receiving the financial assistance, graciously advanced to him by Max Günther, privy councilor of commerce at Leipsic, then visiting the Egyptian monuments, Ebers purchased the treasured papyrus.

With the newly acquired treasure on board, they sailed for Cairo, where they had an opportunity to glance over the contents of the fragile roll. His friend, Professor Stern, remained behind. Ebers traveled homeward, and ended the work which he later showed and explained to His Majesty, the lamented King John of Saxony, a man of letters in the broadest sense of the term. It was finally turned over to the University of Leipsic for safe-keeping.

In order better to preserve the valuable antiquity, and so that it may be shown to the many visitors, it has been cut into twenty-nine pieces of different sizes. Each piece lies under a glass, so as to avoid pasting. Those written on both sides are placed between two glasses.

DESCRIPTION OF THE PAPYRUS.

When Ebers came into possession of the papyrus, it consisted of a single, tightly rolled piece of the finest yellow-brown papyrus. The width of the document was 30 centimeters, and the length of the written part 20.23 meters. No other papyrus known to Egyptologists is better preserved.

The text of this perfect ancient record is divided into columns, each of which is numbered. The column numbers are placed over the first line in the middle of each column, which contains either twenty-one or twenty-two lines. With the exception of columns three to twenty-one, which are considerably smaller, the columns are 22 centimeters in width, and run from 1 to 98, and in the back from 99 to 110. Singularly, the numbers 28 and 29 are missing, although the text continues uninterruptedly. The omission is explained on the ground that the Egyptians considered 110 to be a perfect number, and by this means the writer was enabled to complete his book with the required number of pages.

Dr. von Oefele¹ believes the writer was a very fine calligraphist,

¹ Derived from personal correspondence.

but evidently a very ordinary and careless subject, and therefore carelessly skipped from number 27 to 30.

There is no lack of figures in the text, and only a few that are repeated time and again, and they are written in red to denote the quantity of the medicament to be used, while the prescriptions are in black. Another particular feature of the pagination is that up to column sixty the same hand paged the papyrus, while another scribe continued in the pagination in a different manner, although the text shows that it was wholly written by one person only. The second pagination may be the work of the physician who added his ($\frac{1}{2}$) signature after many a prescription, or the purist, who wisely added his signature in paler ink, when that of the physician was omitted.

Script.—The script in which the Ebers Papyrus is written is extraordinarily regular, partly in black and partly in red ink. This form of writing is known as the hieratic, and is one of the three forms used by ancient Egyptians. The others are the hieroglyphic and the demotic. The hieratic is the cursive form of Egyptian writing, and is used chiefly on sacred and medical papyri and on wooden coffins. How early the hieratic came into use is unknown, but fragments of papyri in script with those characters have been traced to the I. dynasty. The characters are usually written from right to left. The invention of this script was attributed to Thoth (the Greek Hermes), and was in constant use up to about 100 B. C.

About 300 A. D. all knowledge of the meaning of the characters had died out, and it was not until the discovery in 1799 of the Rosetta Stone (by Boussard, a French artillery officer) that any real progress was made in their decipherment.

Rubric or red occurs in almost every heading throughout the papyrus. Also in the statement of the disorder for which a medical prescription is to follow. Those headings, or rubrics, as they are called, show the use of red colors for such purposes in the most remote antiquity. Dr. Christen,¹ in a chemical analysis of this red coloring, found it to contain red lead.

Synonyms.—In the Ebers Papyrus there exist a great many

¹ Ebers: "Die Maaase u. d. Kap. 8. Augenh., p. 71.

synonyms which are so much like a Semitic vernacular, both in expressions and pronunciations, that one is almost led to believe that the ancient Egyptian belongs to the group of Semitic tongues. The language of the papyrus with all its richness of primitive forms possesses such organic arrangements that a single word can be easily recognized, for if a branch of the same is lacking, it may be readily supplied by one from another dialect. Sometimes an abstract conception or a mental function is combined with different things or actions, perceptible through the senses; ordinarily, therefore, things are easily explained; substances of either material or spiritual character are represented according to their characteristics. Each noun contains one of those characteristics; therefore, there exist as many nouns for the same thing as there are characteristics in it. One of the characteristics of the Egyptian, as well as of the Semitic tongues, is that they had different ways to arrive at the expression of the conception, which, however, were not identical in meaning. It is difficult, therefore, to differentiate the co-existing synonyms. Philologists regard the various shades in order to explain the origin of a conception from different sides.

Age of the Papyrus.—The exact date of the writing of this papyrus has not yet been established. Various opinions exist. The calendar which is on the outside of the papyrus refers to the eighteenth dynasty, in the sixteenth century B. C., and bears the following inscription: "In the ninth year of His Majesty the King of Upper and Lower Egypt, Amonophis I, the Everlasting." Before the last epithet is the framed name of the king.

The Date of Transcription.—According to Lenormant,¹ a royal library was established at Thebes 1670 B. C. (near the place where the Ebers Papyrus was found), under the direction of Amen-em-an, who took great pride in transcribing fragile papyri, which was at that time falling into decay. Therefore, it is possible that the Ebers Papyrus was either compiled, revised or rewritten in 1552 B. C., or 118 years after the establishment of the library. There is still another important supposition concerning the Ebers Papyrus. According to the discoverer's opinion, it is identical

¹ "Manuel d'Histoire Ancienne," Vol. 1, p. 425.

with the hermetic books περιφάρμα'κων which are quoted by Clemens Alexandrinus.¹

The latter is said to be the greatest of all works deposited in the tomb of Osymandias at Thebes, which, according to Diodorus Siculus, contained 20,000 volumes. Among these were the forty-two hermetic books described by Clemens Alexandrinus, six of which were medical works, on the structure of the body, on diseases, on instruments, on medicine, on the eyes, and on women.

Hermetic, which means compiled, or inspired by Thoth, was any work which was written by a priest according to the inspiration of the god, which would correspond excellently to the Ebers Papyrus. However, Lüring² believes that the Ebers Papyrus is much older than the book, and argues that there are certain remarkable differential points between them. Whatever may be the truth, the value of the Ebers Papyrus is the same, be it the hermetic work or a compilation from writings of prominent physicians of the earliest ages.

That the writer of the Ebers Papyrus wrote in 1552 B. C. can be proved in three ways, as Ebers³ shows, namely, first, by the peculiar shape of the letters in which the manuscript is written; second, by the names of kings occurring in the papyrus; and third, by the calendar which we find at the back of the first column of the roll.

The name of the king in whose reign the Ebers Papyrus was transcribed, compiled or written was Amenophis I of the eighteenth dynasty.

von Oefele⁴ calls attention to the fact that the language from columns 103 to 110, which are written on the back of the papyrus, is different from that of the rest of the roll, although the handwriting is the same and shows that there existed different dialects in the land of the Pharaohs, the same as exist to-day in many countries. Dr. von Oefele further states that while the style of writing in the Ebers Papyrus does not go back beyond 1600 B. C., yet the text, in other words, the idioms of the language,

¹ Strom. Vol. vi, p. 785, Section 634, ed. Potter.

² Die ä. d. med. Kennt., etc., p. 13.

³ Pap. Kb., Leipzig, 1875.

⁴ Prag. Med. Woch., 1905, No. 11, p. 143.

belong to a much older period, and that the oldest portions of the Ebers Papyrus very likely reach back into the time of the first Egyptian dynasties.

Lepsius¹ and Meyer² believe that it was not only written, but also compiled under the government of an unknown Hyksos king. It is thus generally accepted that the Ebers Papyrus is a copy. Moreover, the many corrections made by strange hands and the many critical, marginal notes found throughout the papyrus show that the document was worked on.

CONTENTS OF THE PAPYRUS.

A large proportion of the diseases known to modern medical science are carefully classified and their symptoms minutely described.

Mention is found of the following diseases, with their treatment:

Diseases of the Abdomen.—Abdominal tumors and swellings, obstructions of the abdomen, swellings in the inguinal region, affections of the stomach, esophagus, pylorus and small intestine, obstruction of these organs, inflammations, diseases of the liver, affections of the intestines, intestinal worms, belching, cramps, jaundice, and chlorosis-Ægyptiaca.

Diseases of the Bladder and Urinary Organs.—Obstruction of the urinary passages, cystitis, retention of urine, polyuria, hematuria, diabetes mellitus, blood in the urine, hypertrophy of the prostate, stricture, dysuria, and strangury in children.

Diseases of the Rectum and Anus.—Tumors, inflammatory abscesses, prolapsus, affections of the vessels, inflammations, obstructions, diarrhea, dysentery, constipation, and pain.

Diseases of the Chest and Respiratory Organs.—Diseases of the bronchi, affections of the lungs, asthma, phthisis, general diseases of the chest, and sequels to diseases of the stomach.

Diseases of the Heart.—Fatty degeneration, dilatation, carditis, angina pectoris, hypertrophy, thrombosis, and anasarca.

Diseases of the Eyes.—Conjunctivitis, iritis, blear eyes, hyperemia, granulations, albugo leucoma, vascular cicatrix of the cornea, corneal opacity, staphyloma of the cornea, inflammation, myiodeopsia, hypopyon, stenosis, contractions, strabismus, xanthelasma, fatty degeneration, abscesses, chemosis, suppuration, amaurosis, amblyopia, cataract, paralysis, blepharitis, injury, calcification of the Meibomian glands, distichiasis, and trichiasis.

Diseases of the Ears.—Impaired hearing, inflammation, viscous humor, suppuration, fetid pus, and foreign bodies.

¹ Ægypt., Zeit., 1875, p. 145.

² Gesch. d. Alt. I, section 402.

Diseases of the Nose.—Tumors, coryza, influenza, and mucus.

Diseases of the Head and Neck.—Tumors, migrain, neuralgia, shooting pains, and vertigo.

Diseases of the Scalp.—Tumors, alopecia, superfluous hair, and eruptions. There are also prescriptions to prevent hair from turning gray, to produce its growth on bald heads, to promote the growth, to make it grow on cicatrices, to depilate the scalp, to prevent white hairs from coming in the eyebrows, and to dye the hair.

Facial Diseases.—Sunburn, freckles, wrinkles, discoloration, roughness, and blotches.

Diseases of the Tongue and of the Teeth.—The ailments of the tongue are not specified, but for the teeth there are prescriptions to strengthen them, to make them grow, to heal ulcers of the gums, swelling of the gums, and bloody congestions of the teeth.

Diseases of the Skin.—Pains, pustules, prurigo, swellings, tumors with fetid suppuration, lesions, fistulas, leprosy, eczema, scabies, rashes, itching, burning, cankers, boils, carbuncles, and furuncles.

Diseases of the Blood, Arteries, Veins and Nerves.—*Distoma hematobium*, extravasations, congestion, coagulation, numbness of the vessels, loss of suppleness, and weakness of the nerves.

Sores and Wounds.—Blows that have cut the flesh, blood in the opening of the wound, gangrene, eschar formation, pus, contusions, cuts, pricks, bites of man or beast, thorns, splinters, etc., and their treatment.

Burns.—Sores which result from burns, poisonous burns, spots or white cicatrices which such sores leave, and alteration of the hair on the burnt surfaces.

Diseases of the Limbs.—Trembling, pain, swellings, stiffness, bent limbs, itching, tumors, lesions, *Filaria medinensis*, tired limbs, perspiration of the feet, sore toes, corns, bunions, callosities of all sorts, and falling nails.

Diseases of the Female Genitals.—Tumors and abscesses in the vagina, inflammation of the vagina, twinges in the vagina, chafing due to inflammation in the vagina, ulceration of the womb, pain in the labia, abscesses of the labia, menstrual disturbances, *fluor albus*, affections of the mammary glands, etc., and their treatment.

Maternity.—Methods to induce abortion, to prevent abortion, to replace a prolapsed uterus, to deliver a woman, to perform version during delivery, to deliver the placenta, to restore the vagina to its normal condition, to prevent retention of the urine, and to stop hemorrhage.

Hygiene.—Deodorizations, fumigations of dwellings, perfumes for women to render odor of the house, clothing and breath agreeable, to destroy insects, reptiles, plant lice, to prevent wasps and mosquitoes from stinging, to prevent mice and rats from gnawing things, to prevent birds from eating crops, to prevent rodents from devouring corn in the granary, and to destroy lizards and scorpions.

Not only diseases producing suffering to mankind claimed the physician's care in those days, but he had also to consider the toilet. Seventy-four prescriptions pertain alone to hair washes, dyes, oils and depilatories. After duly reflecting on important anamnestic facts, on the subjective disturbances or disorders, and the objective or demonstrable changes, the physician prescribed the treatment, and a remedy which was either aimed at the principal subjective disturbance of the patient, or at the most striking objective manifested symptom, and often symptoms of the disease were regarded as the disease itself. It is not improbable that in difficult cases consultations were held.

In this papyrus are mentioned over 700 different substances from the animal, vegetable and mineral kingdoms which act as stimulants, sedatives, motor excitants, motor depressants, narcotics, hypnotics, analgesics, anodynes, antispasmodics, mydriatics, myotics, expectorants, tonics, dentifrices, sialogogues, antisialics, refrigerants, emetics, anti-emetics, carminatives, cathartics, purgatives, astringents, cholagogues, anthelmintics, restoratives, hematics, alteratives, antipyretics, antiphlogistics, antiperiodics, diuretics, diluents, diaphoretics, sudorifics, anhidrotics, emmenagogues, oxytocics, ecbolics, galactagogues, irritants, escharotics, caustics, styptics, hemostatics, emollients, demulcents, protectives, antizymotics, disinfectants, deodorants, parasitocides, antidotes and antagonists.

Medicines are directed to be administered internally in the form of decoctions, infusions, injections, pills, tablets, troches, capsules, powders, potions and inhalations; and externally, as lotions, ointments, plasters, etc. They are to be eaten, drunk, masticated or swallowed, to be taken often, once only—often for many days—and the time is occasionally designated—to be taken mornings, evenings, or at bedtime. Formulas to disguise bad-tasting medicaments are also given.

The Ebers Papyrus contains numerous other subjects pertaining to the practice of medicine, which the reader will find in the text.

TRANSCRIPTION FROM HIERATIC TO HIEROGLYPHIC.

In 1874, two years after the discovery of the papyrus, at the

Orientalists' Congress, held in London, a method of transcribing hieratic texts into hieroglyphics was devised. Ebers, in working on the papyrus, has followed this method in general, still he transcribed a few signs, especially those which seem to indicate vowels, independently of the London method. The latter, accepted in the main by all orientalist, has been modified in its details by all Egyptologists, so that in every work on this papyrus we meet with various interpretations of the written characters.

In 1875 Professor Ebers, with the financial support of the Royal Saxonian Ministry of Education, had reproduced *fac simile* photo-lithographic plates in size, dimension and color, in two magnificent volumes, in large royal folio, illustrated after the hieratic text.

Volume I contains an introduction written by Ebers himself, a general index of the titles of all the subjects, with explanatory notes and plates I-LXIX. Volume II contains an hieroglyphic and Latin glossary of all Egyptian words alphabetically arranged, with reference to the columns and lines where they are found, and plates LXX-CX. Much credit is due both George Ebers and his traveling companion and assistant, Ludwig Stern, librarian of the vice-royal collection of manuscripts in Egypt, for the reproduction and the translation from a language of which so little is known. The study of Egyptian literature, as a whole, is hardly more than three-quarters of a century old, and too much praise cannot be given Prof. Ludwig Stern for his labor and the pains taken in the compilation of the special glossary annexed to this beautiful work, which will ever remain an honored testimonial and a monument to both immortal names.

OTHER PAPYRI AND MEDICAL ANTIQUITIES.

There are now in existence seven papyri on the subject of medicine, those at Berlin (large and small), London, Leyden, Turin, Bulak and Leipsic, the last being the Ebers Papyrus, which, because of its rich contents, the distinctness of its script and its completeness, is foremost in importance.

In order to fill the vacuum between Ebers Papyrus and the writings of Hippocrates, we must not overlook the inscription on one of the "Mastabas," or tombs of Egyptian grandees, which

surround the pyramids of Sakkarch, that of Sekhet-enankh, chief physician of the Pharaoh Sahura of the fifth dynasty, 3533 B. C. It describes how he healed the king's nostrils, for which his majesty wishes him "a long life in holiness;" and the compilation of medical works assigned by tradition to one of the most ancient kings, Teta, the successor of Menes of the first dynasty. Manetho¹ the Egyptian priest and historian, tells us that this king wrote treatises on anatomy and surgery and performed surgical operations with flint flakes. About 3300 B. C., during the reign of Cheops, the builder of the great pyramid, a medical papyrus containing anatomy was found by a priest in a temple. We also know that the Egyptians practised embalming for over 5000 years B. C., and their process surely necessitated a knowledge of anatomy. There can be no doubt, therefore, that this ancient people knew the structure of the body, and without that knowledge they could not have understood even the symptoms of the different maladies enumerated in the Ebers Papyrus.

Pliny (XIX, 5) tells us that the Egyptians examined the bodies after death, to ascertain the nature of the diseases of which they died. There may have been a prejudice against it, perhaps, just the same as there is to-day, but the Egyptians did not shrink from human dissection, consequently the study of anatomy was a matter of course. However, they may not have attained the degree that we might expect in comparison with their other medical knowledge.

Another relic of Egyptian medicine is the domestic medicine chest (Fig. 1) of the wife of Pharaoh Mentu'hotep of the eleventh dynasty, 2500 B. C. It contains six vases, one of alabaster and five of serpentine, with dried remnants of drugs, two spoons, a piece of linen cloth and some roots, enclosed in a basket of straw-work. It was found in the queen's tomb (Fig. 2).

Beginning with the earliest chronology on the existence of Moses, or his five books in the Bible, and considering the doubtful authority and the most accepted authority, namely, Josephus, who believed that Moses wrote Exodus about 1985 B. C., and

¹ Ap. eund. p. 54 c.



Fig. 1.—A domestic medicine chest of an Egyptian queen.



Fig. 2.—Stone case in which medicine chest was found in queen's tomb.

Bunsen, who stated that Moses died 1523 B. C., we observe a difference of 462 years in the dates assigned to the life of Moses, hence between the two authorities we naturally come to the conclusion that the five books of Moses must have been written between 1985 B. C., and 1523 B. C. Hence, as between the oldest and the latest parts of the Ebers Papyrus lies a vast space of time, over 3000 years, the whole dating from various epochs between 4688 B. C. and 1552 B. C., it appears reasonable to conclude that Moses knew Egyptian medicine. Medical literature was considered sacred, and therefore was carefully guarded from the profane eyes of the laity, and was only open to members of the priest class and their matriculants.

EGYPTIAN AND MOSAIC MEDICINE.

Moses, in whatever period he existed, was known to have resided at the court of Pharaoh, and to have received his collegiate education among the wise men of Egypt, and in the same school in which Ebers Papyrus was written. The immortal Ebers, in his "Aegypten und die Bücher Moses," Berlin, 1868, has already shown the existing similarity of the Bible and Egyptian writings.

Biblical botany no doubt originated with the Egyptians and found its way into the Mosaic writings. The same source led to the knowledge of the plant world and the most remarkable phenomena of plant life.

We find the Bible not poor in the designation of different plants and their various parts. In the very beginning (Gen. i, 11) we read: "And God said: Let the earth bring forth grass, the herb yielding seed and the fruit tree yielding fruit after this kind," etc.

Biblical Medicine.—Moses, who evidently borrowed from the writings and teachings of the Egyptians, gives us in his "five books" information of their anatomic knowledge. In the narrative of the twin birth of Esau and Jacob, it is related that the latter grasped the former's heel (Genesis xxv, 26); and in the description of Jacob wrestling with the angel it is remarked that the angel touched Jacob's hollow of the thigh, and put it out of joint (Genesis xxxii, 25); and in the same chapter, verse 32, the "sinew that shrank" is spoken of.

In Exodus (xxviii, xxix) the heart, brow, shoulder, breast, lobe of

the ear, hand, finger and thumb are mentioned. In Exodus (xxix, 17) dissection is mentioned, "and thou shalt cut the ram into sections;" some of the visceral portions are also mentioned, such as inwards, caul, liver, fat kidneys; skin also occurs. In Deuteronomy (xxxii, 10) the apple of the eye is mentioned, the lids (Ps. xi, 4), and eyes (Exodus xxi, 24); bones (Gen. ii, 23), and sinews (Gen. xxx, 32); teeth (Gen. xlix, 12); palate, temple (Cant. ii, 3; vi, 7). In Job (xvi, 13) we read of pouring out his "gall" on the ground.

The Bible tells us of physicians (Gen. 1, 2): "And Joseph commanded his servants, the physicians, to embalm his father." Isaiah (iii, 7) mentions particularly a healer: "I will not be a healer." We also find that the Jewish prophets, as well as the Egyptian prophets, practised the art of healing. This may be seen from the narration of a man of God who restored the paralyzed hand of King Jeroboam (I Kings, xiii, 4-6). Elijah brought to life a child, apparently dead (I Kings xvii, 17-22); and his disciple, Elisha (II Kings iv, 18-20, 34-35) performed similar miraculous cures. Isaiah (II Kings xx, 7) cured King Hezekiah of an inflammation by applying a plaster made of figs.

The Bible likewise mentions surgeons and surgery of wounds and injuries in different parts of the body, caused by various weapons—sword, arrow, hammer, etc. (II Sam. ii, 23; iii, 27; iv, 6; xviii, 14; xx, 10; Num. xxv, 8; Judges iii, 21; v, 24; I Kings, xxii, 34; II Chron. xxxv, 23; and many other places). Inflammation and abscesses (Deut. xxviii, 25, 27) are also mentioned. Wounds were treated by the application of wine or oil, bandages or sutures (Isa. i, 6; Jer. viii, 22; xlv, ii, li, 8; Deut. xxviii, 27). Gangrene and putrid discharges (Ps. xxxviii, 6; Prov. xii, 4; xiv, 30; II Macc. ix, 9) are spoken of.

It is also evident that Moses acquired a knowledge of chemistry from the Egyptians. As Boerhaave aptly remarks, the fact that Moses knew how to reduce gold to powder so as to render it miscible with water, and by this means potable, shows he had acquired a knowledge of chemistry only to be attained by the highest masters of science and art.

The fact that apothecaries רִקְחָ (Rakha) are mentioned in the

books of Moses (Exodus xxx, 25-35, "after the art of the apothecary;" Exodus xxxvii, 29, "according to the work of an apothecary;" Ecclesiastes x, 1, "the ointment of the apothecary;" II Chronicles xvi, 14, "prepared by the apothecaries' art"), and the compounded prescriptions in the Ebers Papyrus, furnish us evidence that a distinct class of apothecaries existed among the ancient Egyptians, who were cultivated pharmacists.

Certainly more competency was required of the ancient pharmacists than of those of our day, for the former had to make their own pills, extracts, infusions, etc., as we can find no proof that there existed manufacturing chemists. Their prescriptions were composed of many ingredients and many remedies. Of the 108 columns in the Ebers Papyrus, seven were devoted to taenia alone.

There can hardly be a doubt that the Ebers Papyrus existed prior to the exodus of the Israelites, and that the Biblical medicine embodied in the so-called תורה שבכתב Torha shebactab (written law) had its origin in the valley of the Nile.

Post-Biblical Medicine.—Beginning with the post-Biblical history of medicine, we have the mishna, which was discovered 623 B.C., but which may have been handed down by oral tradition for many centuries before, and which is called תורה שבעלפה Torha shebalpae, (oral law). In this work is found a book on medicine ספר רפית (saphar raphout), containing classifications of plants, trees, etc., and their habitations.

We also know that another Egyptian monarch, Nakhepsus of Sais, in the seventh century B.C., wrote on medicine. It is said that he was the first to observe the wonderful virtues of green jasper, which, when engraved with a dragon with rays, and hung around the neck, was considered a cure for digestive disturbances.

The employment of numerous drugs in Egypt has been mentioned by both sacred and profane writers; and the medicinal properties of many herbs which grow in the deserts, particularly between the Nile and the Red Sea, are still known to Arabs, though their application has been but imperfectly recorded and preserved.

Homer¹ speaks of the great number of medicinal plants and

¹ *Odyss.*, vol. iv, pp. 226-230.

herbs produced in Egypt, some of which grew naturally, while others were cultivated.

The fame of the Egyptian physicians was spread throughout the ancient world. Homer described them as the "sons of Pæon, skillful above all men." In the third book of Herodotus is the following passage: "Cyrus sent to Amasis (500 B. C.) and bade him for an oculist—the best in the whole land in Egypt." Darius also sent hither for a body physician, and in the time of Tiberius and Nero, Egyptian physicians regularly came to Rome, usually to heal skin diseases. The science of medicine among this ancient people was in the hands of specialists, who were called *Smu*. Homer, and later Herodotus (ii, 37) tell us that there was a specialist for each single disease, and what records we now possess of the Egyptians after thousands of years of continued destruction corroborate the statement of the latter when he says that Egypt swarmed with physicians. They concealed their medical knowledge under the most mysterious formulas, and therefore used a writing or language not understood by the laity. The Latin prescriptions of our modern physicians appear to be an echo of the secret doings of our ancient colleagues.

The subdivision of the medical profession which prevailed among the Egyptians must have had a tendency, in some respects, to advance medical knowledge by specializing it. If we review the contents of the papyrus, we can not but admit that the Egyptian physicians were well advanced in ophthalmology. The collection of Hippocrates, edited 4,000 years later, did not contain more eye diseases, but they were more clearly and more agreeably described. The number of diseases mentioned in the Ebers Papyrus, as well as the profusion of medicines prescribed, is a source of wonder to modern physicians. The ancient Egyptians must have been experienced diagnosticians. All physicians, however, were required by law to employ the prescribed remedies, and in no case to resort to others unless, as Aristotle (iii, 10) states, the regularly authorized prescriptions proved unavailing. Any transgression of this rule of practice, if followed by the death of the patient, was a capital offense. This may have been but a nominal law, or one, as Finlayson says,¹ "held in reserve

¹ *British Med. Jour.*, April 8, 1893.

to check abuses, for the complicated formulas and large choice of alternate remedies indicated in the Ebers Papyrus would seem to show that no great weight was attached to strict adherence to special methods, deviation from which was fatal."

Up to a recent period our knowledge of Egyptian medicine was gathered solely from scattered passages from great writers. Praxagoras (though from Cos, the town where Hippocrates was born, and where the temple of Esculapius was built, lived in Egypt), of whom Galen speaks as the greatest symptomologist and diagnostician, and quotes his treatment for acute diseases, and especially gymnastics, was the teacher of Herophilus (400 B. C.), the first anatomist who made post-mortems on cadavers. The former went to Egypt for his medical learning, and established a school for Greek physicians; the latter went for the same purpose and founded a system of pathology.

We have a continuous history of Egypt to the extent of about 5,000 years B. C., and a prehistoric account of 2,000 and a continuous culture known to us to cover about 2,000 years more, hence our continuous knowledge probably extends back to about 9000 B. C.

The Ebers Papyrus, therefore, opens a new era for the history of medicine and pharmacology. The work discloses an astonishing knowledge of a great variety of remedies, and shows that 4,000 or 5,000 years before Christ there were learned men in Egypt who could make intelligent observations of disease, combine complicated prescriptions and use them with judgment. It is hardly possible to exaggerate the literary, scientific and historical importance of this wonderful papyrus, the most complete compendium of Egyptian medical science that is left to us, and we must acknowledge the fact that the copy of the Ebers Papyrus is the genesis of medicine.

TRANSLATION.

My sole purpose in translating the "Papyrus Ebers" into the English language is identical with that of the illustrious Ebers himself, namely, to bring out the origin and to cultivate the prehistoric knowledge of medicine, and to show that there existed in ancient Egypt nearly 7,000 years ago a civilization in which

medical knowledge was in a high state of cultivation and in which the foundation of our present system of medicine was established. A careful study of this papyrus will convince the student that the medicine of to-day is essentially the medicine of the ancient Egyptians. Certainly it was in a crude state and on the same footing as our wearing apparel, both in custom and in fashion. Man has always covered his nakedness from the day that Adam ate of the apple. Garments have developed from the leaf-covering to our present style of dress. In our latest advancement of civilization we have doffed the turban and donned the hat; we have cast aside the chiton and have clad ourselves in the frock; we have dispensed with the kilt and adopted trousers; we have thrust aside the sandal and have replaced it with the shoe. A similar evolution has taken place in medicine. New garbs adorn anatomy, physiology, pathology, botany, chemistry and *materia medica* in general, but the fundamental principles of curing disease still remain the same. Even the various methods in the practice of medicine have not changed. From all historical accounts and from the contents and language of this papyrus, we have evidence that the ancient Egyptians had three different classes of physicians—the regulars, the priest physicians and the conjurers, just the same as we have to-day. Our advancement consists merely in a greater variety. We have regulars, irregulars, faith healers and many others, too numerous to mention.

In my translation I have added commentary notes, the aim of which is to establish the fact that medicine up to, and from, the time of Hippocrates until the present day has been built on the foundation of that of the ancient Egyptians.

It was with great hesitancy that I entered on this very difficult task, by reason of a real distrust of my own ability. My knowledge of Egyptology is but superficial, and yet I have been greatly encouraged by medical men in various parts of the world, to whom I had communicated my intention. On their advice, therefore, I venture to offer this work, not only to fill a hiatus in our medical history, but to bring forth for the first time in the English language the ancient treasure of medical knowledge, namely, "Papyrus Ebers", translated from the original, utilizing the labors of Ebers,

Stern, Brugsch, Chasbas, Dümchen, Ermann, Lüring, Lieblein, Joachim, von Oefele, Hirschberg, Scheuthauer, Schäfer, Proksch, Lange, Piehl and many other renowned Egyptologists.

The assistance of the above-named scientists, whose labors cover a period of over thirty years, and their criticisms of one another have enabled me to produce probably the best translation in a modern tongue. I have borrowed from these eminent minds not as a plagiarist, but as a kleptomaniac, who steals for the benefit of others. In no place have I failed to acknowledge the theft by a foot-note; therefore, I can only appeal for mercy to those who are always ready to engineer some method of criticism, be it just or unjust. I have spared no pains to render the translation as accurate as possible. In a work involving such an infinity of details and interpretations, doubtful to even more scholarly Egyptologists, it would be unreasonable to expect that no errors or misinterpretations would occur.

While the outline of my work is as crude as that of a pioneer, I trust it will serve the labors of others who are more accomplished.

I now come to that which is to me the most painful part of my duty; that is, to inform you that the immortal Ebers had worked on a translation for a period of twenty-five years. His death, however, unhappily cut short his labors. On opening his last will and testament it was found that in case of death the manuscript was to be burned; accordingly, his will was carried out.

In conclusion, gentlemen, allow me to acknowledge my sincere gratitude to Baron von Oefele, the greatest living medical Egyptologist and ancient medical historian, for his consent to review and to correct my translation of the "Papyrus Ebers" before its publication. I also wish to express my thanks to my daughter, Edith,¹ who for seven long years has labored by my side, inspired not merely by the devotion of filial love, but also by the same interest and purpose as that of her father, namely, to cultivate medical history and to elevate the standing of the humane and noble profession of medicine.

70 BELLEVUE PLACE.

¹ The wife of Dr. jur. F. C. Zitelmann, now in the Ministry of Foreign Affairs, Berlin, Germany.

OBSERVATIONS IN PASSING.

WHY IS IT? A CONUNDRUM.

Last November a number of ladies and gentlemen, apparently in a serious mood, gathered in Chicago. They were youthful it is true, but none so young as to be prejudged as wishing to engage in Sophomoric pranks. Quite a number of them had acquired such a position in life as to have a biographic sketch in "Who's Who in America." With evident seriousness they discussed several questions, that to them, and to many of their peers who were not able to be present, seemed to be questions of vital importance to the inhabitants of these United States of America.

The meeting did not escape the notice of the press, and the ubiquitous and gentlemanly reporter was in evidence, and, as a consequence, items concerning the meeting have appeared in the newspapers from Gotham to the Golden Gate. If several "clipping bureaus" have been impartial in their scissorings, the attention of the reading public has been called not to the subjects supposedly of personal value; instead, two items were taken from their sane surroundings, and thus separated were made the butts for shafts of wit. What is the psychologic process leading to this result?

Is it that the medical profession so impresses itself upon the public, that it can not be considered seriously by the well? Francis Rabelais long ago voiced a truth:

The Devil was sick, the Devil a monk would be;
The Devil was well, the Devil a monk was he.

And our own Longfellow translates:

Joy, health and repose,
Slam the door on the doctor's nose.

Are these scintillations of wit, and pleasantries of humor anent a motor car for dyspepsia, and joyful defense of football, but the orthodox manifestation of door-slamming?

Or is it a manifestation of the trend of journalism. Wit in the beginning implied knowledge; it has gone far afield since those

days. Is the effort of modern journalism to afford opportunities for bright phrasings, whether the sentiment is sensible or the reverse—possibly, since surprise is often attempted, preferably the nonsensical? Or is it the reading public? The newspaper caters to the taste of the people rather than striving to create the proper taste. Is it that the people will not read sober truth and therefore will not buy those papers which provide it? That, as a consequence, the army of bright minds engaged on newspaper work, must study to infuse the froth of levity in all things serious. Can it be that the classes of society are in such a state of unrest that sober, second thought could be a catastrophe, and the power of the press must be used to keep them from thinking as a benevolent agent for the welfare of the land?

Whichever view one may take of the incident, the problems suggested are interesting, and like a child's question, the more readily asked than answered.

* * *

Through an unavoidable detention, the remarks of Prof. Dodson, of the University of Chicago, in the discussion on the Report on Medical Legislation did not appear with the rest of the discussion in the last number. We give them below, to add their value to an already valubale discussion.

Mr. President:—I regret very much that I did not hear the report of the Committee, and I shall have to infer its general character from the tenor of the discussion. I should like to say a few words in reference to the custom of giving credit for work completed in non-medical institutions, for that question is a very vital one.

As matters stand to-day, the small college, having no professional departments, seems, in a way, to be facing extinction. With the high schools preparing to extend their present course to six years, on the one hand, and, on the other, the University offering a combined course of six years leading to the academic and professional degrees, the professional course beginning with the Junior year, it is not difficult to foresee that the vast majority of young persons planning to enter a profession will naturally proceed directly from the six-year high school course, if such should become at all the general one, to the professional course in the University, passing by the college entirely.

We need to offer every reasonable inducement that we can to persuade prospective medical students to take as much college work as possible

before entering upon the study of medical branches. It is for this reason that many medical schools have given credit, both in the amount of work required and the attendance in the medical school, for work completed in the literary and scientific colleges in the medical subjects. Largely pursuant to the request of the medical schools, these colleges have for some years been shaping their curricula so as to prepare men better for the study of medicine, and some of them have introduced extensive and well-taught courses in anatomy, physiology, chemistry, embryology, histology and bacteriology. Students in these colleges have been able to complete from one-third to one-half or more of the first two years of the medical curriculum.

I have visited many of these institutions, became acquainted with their teachers, their equipment and their methods, and in almost every instance where such medical work is offered, it is better and more thoroughly taught than in the average medical school. Why should the medical school hesitate to give credit therefor?

I do not think we shall long be deterred by the action of the Minnesota Board of Medical Examiners, for I believe their recent ruling to be unwarranted by their statute, and too unjust and illogical to stand the test of the courts. The Minnesota Medical Practice Act does not specify that the physician applying for admission to practise in that state shall have spent four years in a medical school: it says that "he must have spent four years in the study of medicine in a recognized college." And when the Board goes so far as to say that it will refuse recognition to any diploma issued by a medical college which grants such advanced standing to any student—applying the law to the college, rather than to the individual graduate—I doubt if there be any court of law which would sustain its ruling.

I am a good deal in sympathy with what Dr. Beard has said as to the disappointing results of our medical legislation, as a means of suppressing quackery. That desirable end can only be attained by the education of the public, and no legislation will be effective until there is an enlightened demand for it on the part of the people. Even in Germany, where the laws controlling the admission to medical practice are at least as stringent, and as rigidly enforced as anywhere else in the world, the blatant advertising quack is said to be more numerous and more prosperous than ever before. So long as the people wish to employ persons they are sure to continue to do so.

But I am not wholly pessimistic as to the good results of our medical practice acts if properly drawn and properly administered. The several examining boards should keep constantly in mind, however, that they are created, not to manage and regulate the medical schools—except indirectly—but to determine the fitness of the graduates of these schools to practise medicine. The method provided for this purpose is the examination, but this must be of such character and extent as to adequately test the candidate's fitness. Very few if any of the licensing examinations, as now conducted, are of the right sort. While the better medical schools have for years been seeking to make their instruction more practical—to train their students to see, to feel, to hear,

and to do things by the practical exercise of their several faculties—the examining boards continue to test these graduates by the purely written examination, and with questions often very poorly selected.

If the examiners will make their tests of the right sort, conducted by competent examiners, let them be as severe and thorough as possible, but the end sought can never be accomplished through attempts on the part of the examining boards to prescribe and restrict the medical colleges. These institutions must continue to have full freedom to introduce new methods of instruction, often, of necessity, different in the different schools. Then let them be judged by their results.

* * *

The *Medical Sentinel* for December publishes a timely editorial article on the Medical Department of our Army—the results of the enlightened policy of the Japanese affords so apt an object lesson, that one would think even a United States Senate would champion progress. When one looks at the subject more closely, the relation of the profession to public life is just about the same in its influence as the relation between the line officers and the Medical Staff in the Army and Navy. We all are conscious of it, and still they say the Academy does not deal with practical questions, when it tries to get at the facts producing these conditions. Some day the profession will awake to the necessity of a scientific study of its social relations as of equal importance—to itself at least—as the scientific study of disease and the treatment thereof.

* * *

It is to be hoped that a large delegation will attend the XV International Congress of Medicine at Lisbon in April next. The profession of Portugal, and especially the Committee of Arrangements are hard at work to furnish a profitable meeting. The Secretary-General is Prof. Miquel Bombarda, Nova Escola Medica, Lisbon. An excursion from the United States will leave New York on the 7th of April on the North German Lloyd Steamer *König Albert*. The details of the excursion can be learned from Dr. Charles Wood Fassett, St. Joseph, Mo.

LITERATURE NOTES.

CLEFT PALATE AND HARE LIP. BY W. ARBUTHNOT LANE, M.S., F.R.C.S.
London: The Medical Publishing Company, Limited. 1905.

In this little brochure Mr. Lane discusses first, the forces which tend to influence the formation of the nasopharynx; second, conditions frequently accompanying these; and third, his operation for cleft palate. This operation is complicated and the illustrations employed are wholly inadequate even with the text, to give a clear idea of how the double flap which he recommends is placed and brought together in the nose. The first section of the monograph is very suggestive and well worth consideration.

The operation seems to have been very successful when employed by Mr. Lane. I doubt that American surgeons would feel that it is an improvement over well-known methods commonly employed in this country, however.

The paper, type and get up of the pamphlet is certainly excellent. It is delightful to read such large clear print and to handle so well-arranged a book. The Medical Publishing Company, Limited, deserves great credit for its work and Mr. Lane should have the thanks of the profession for publishing another little work in such excellent style.

Dr. Flavel B. Tiffany, of Kansas City, like a dutiful husband, at his wife's request, forewent the pleasure of taking part in the discussions of the section on Ophthalmology at Portland last summer, and took a trip to the "Land of the Midnight Sun" instead. He has issued a handsomely illustrated brochure of 87 pages, enabling his friends to share with him the pleasures of the trip. If the doctor operates as neatly as he describes a summer jaunt, thrice happy are his students to whom the booklet is dedicated.

The *Alkaloidal Clinic* remains the same in appearance, although it henceforth is to be known as the *American Journal of Clinical Medicine*.

BULLETIN

OF THE

American Academy of Medicine.

VOL. VII.

ISSUED APRIL, 1906.

No. 6.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or address published in the BULLETIN.

REPORT OF THE COMMITTEE TO TABULATE THE ACADEMIC VALUE OF THE FIRST DEGREE.

BY WINFIELD S. HALL, DONLY C. HAWLEY, W. JAMES BARLOW, C. H. VAN FELT, and
CHARLES MCINTIRE, Committee. Report presented by DR. HAWLEY.

I.

INTRODUCTION.

"Tell me what I am to look for?" Sir Michael Faraday used to say when a friend wished to make a demonstration by an experiment. Your committee was appointed to determine the academic value of the first degree in our American degree granting institutions for the purpose of classification, since it has been asserted by no less an authority than the Department of Public Instruction of New York that many institutions grant degrees after insufficient training.

The mere statement of our duty raises the question: What shall the degree represent? What are we to look for? This question must be answered before we are able to give an opinion of the value of any course in any individual college. To answer this question, we must know:

- (1) What a college course is intended to do, and
- (2) What are the elements which, when compounded, make the physician?

Knowing the limitations of the college on the one hand, and the make-up of the product desired on the other, the formula-

¹ Presented to the American Academy of Medicine, Chicago, Nov. 9, 1905.

tion of a standard will be more accurate, and the classification resulting from the comparison of the individual course, fairer.

To some minds the education of the physician is a question of importance. Thus, Mr. George Cooper Franklin, in his president's address to the British Medical Association this year (1905), says: "It seems to me that the importance of the education of the medical man or woman of to-day is greater than it ever was, and the responsibilities of those who are engaged in teaching are greater than ever."¹

Nor does he by this refer to the professional training alone, for he says a little farther on in the same address:

At the root of all progress lies the improvement in general and professional culture of those about to enter the medical profession. Can any one deny that some of the preliminary examinations of to-day are too easy? They are not sufficiently stringent to secure a proper standard of culture. I do not think that any student should be put on the *Register* unless he has passed the matriculation examination of the University of London, or one of equal stringency. In the good time coming, when all medical students will be undergraduates of a university, and will be obliged to take a degree in arts, this question of preliminary examination will be solved; until then we must do the best we can. I think the advantages of a good classical education early, to a man entering our profession cannot be overrated. Nothing will or can make up for it.²

(1) WHAT CAN BE ACCOMPLISHED BY A COLLEGE COURSE?

Some one has likened it to a grindstone; it will act the same to a piece of hoop iron or a blade forged from crucible steel, with a vastly different end result.

In an article in *System*³ by Herbert J. Hapgood on "The Value of Employees," the question is asked: "What is the value of college training as a preparation for business?" And this is the reply:

It is a mistaken idea to suppose for a moment that colleges or universities or technical schools can create ability. If they could do that our institutions would be unable to accommodate the army of students which would pour in on them. College training can, however, develop a man's ability and can therefore, increase his ultimate value in business.

As old Gorgon Graham says in his inimitable letters, 'anything that trains

¹ British Med. Jour., July 29, 1905, p. 223.

² Ibid., p. 224.

³ December, 1904.

boys to think and think quick pays.' This is exactly what a college education does. It teaches a man very few things that he can make use of in business, but it teaches him how to acquire knowledge of new things and to acquire it quickly. It does not give him brains; it teaches him how to use what brains he has. For the first two or three months the average college man in business is worth no more than a sixteen-year-old boy. At the end of the trial period, however, he begins to increase rapidly in value and before two years are past he will be earning more money than the man without the college training, who has four or five years' start of him in business.

The only way to satisfy yourself as to the usefulness or worthlessness of college men is to watch the results obtained by other employers who employ them, or better still to hire a few yourself. A notable instance of the value of college men is furnished by the Western Electric Company, which began employing college men about ten years ago and has found that 90 per cent. of them make good, as compared with 10 per cent. of the men who enter business on leaving the high or grammar school. A large percentage of the executive officers and heads of departments of this great company are college men who have worked their way up from the ranks.

A college then, from this view-point, is a factory where the value of the finished product depends primarily upon the character of the raw material furnished. It also depends upon the process employed; but no process will cause a transmutation of metals. Unless the gold be in the ore, none will be found in the end-product.

Incidentally another point of resemblance between a well conducted factory and a college might be noted. Each utilizes everything and produces a number of by-products—with this difference, in the college the by-product is added to the chief product adding to its desirability.

(2) WHAT ARE THE ELEMENTS WHICH, WHEN COMPOUNDED, MAKE THE PHYSICIAN?

Unless we have a clear idea of what the product should be, we are unable to determine the value of any process suggested to produce that product. In defining our standard it will be well to heed Hippocrates:

And most especially, it appears to me, that whatever treats of this art should treat of things which are familiar to the common people. For of nothing else will such a one have to inquire or treat, but of the diseases under which the common people have labored, which diseases and the causes of their origin and departure, their increase and decline, illiterate persons cannot easily find out themselves, but still it is easy for them to understand these

things when discovered and expounded by others, for it is nothing more than that every one is put in mind of what had occurred to himself. But whoever does not reach the capacity of the illiterate vulgar, and fails to make them listen to him, misses his mark.¹

With this we would associate the following sentence by David Starr Jordan, president of Leland Stanford Jr. University: "It takes a broader mental horizon to be a physician than merely to practice medicine."²

Our product should be physicians who can make their influence felt upon those classes in the present social order comparable to the common people in Hippocrates' time.

As there are no mystical processes, no mysterious rites by which a man may be transformed into a physician, nor a prolonged manipulation which will insure success to every one submitting to it, your committee sought to secure the coöperation of a number of those who had the opportunity for observation by means of a letter of inquiry. This circular was sent to the Fellows of the American Academy of Medicine, the deans of the various medical schools, to about 100 of our college presidents and to a few others. It reads:

At the meeting of the American Academy of Medicine held at Atlantic City in June 1904, a committee was appointed to tabulate the academic value of the first degree in our various American colleges.

Before being able to compile this table the committee finds that it must establish a standard. It is of the opinion that this standard should be based on the efficiency with which such liberal studies are given that will best fit the student for a medical education, without special reference to those studies being a part of the medical course.

Before one enters upon the study of medicine, he should have:

- (1) A certain character.
- (2) A trained mind.
- (3) A knowledge of certain facts.

To enable it to formulate these qualifications you are asked in common with a number of physicians and teachers to reply to any or all of the questions on the enclosed blanks.

The following questions were sent along with the circular:

(1) CHARACTER.

What is the character to be desired of the neophyte in medicine? To what

¹ The Genuine Works of Hippocrates, Sydenham Society, Vol. I, p. 162.

² "The Training of a Physician," Popular Science Monthly, August, 1903.

extent can it be developed by educational processes, and what class of studies is adapted to bring it about?

(2) MENTAL DISCIPLINE.

What mental discipline is essential that a student may profitably benefit by a medical course?

(3) REQUIRED KNOWLEDGE.

What facts should be in possession of the intending medical student before he enters upon his medical studies? Can the acquisition of these facts be used to train the character and the mind?

These questions were made general purposely. We wished to afford the greatest freedom in the opinions expressed. The replies are incorporated in this report as an appendix. The threefold form of question suggested a threefold division to the report. Each division has been prepared by a member of the committee, but each one had the opportunity to see all the replies that were received.

II.

CHARACTER.

An armorer is to forge a sword; for this purpose he selects a piece of steel. Can the iron from which the steel is derived be reduced from any kind of iron ore? Or must it contain certain ingredients and be free from others? Will any method of making steel secure the desired metal, or must it be peculiar? Then when it is finished, must it only be of a desired appearance, or must it possess certain properties?

That every one who is licensed to practise medicine does not make a successful practiser is a truism. That the man with more limited training frequently outstrips his fellow of greater scholastic advantages is also evident. In common with most who have replied to the committees' questions, we assert that there must be something innate or all the training will not avail. What is that something? Most of the replies state qualities desirable, almost essential, for a physician, but most of those states are also desirable to an equal extent by men in other vocations. President Hadley's suggestion¹ that students fall into one of three classes—those who want facts, the scientific type—

¹ "Mental Types in Our Schools," Arthur T. Hadley, president of Yale University, *Harper's Magazine*, June, 1905.

those who desire ideas, the literary type—and those who are interested in affairs, the administration type—is helpful. Not every man of a scientific type will make a successful practiser. One of the most distinguished anatomists that ever taught in an American Medical School—an eminently successful man of science—once said to his class, after a very clever dissection on the cadaver, that he would be utterly unable to perform a similar section upon the living to relieve disease.

The boy or girl who does not fall into President Hadley's division of fact seekers, will not make a physician, and by its limitations, that is helpful. A successful practiser is one that gains patients and retains them. If he cannot be measured by the standard of Hippocrates, he may be a scientific investigator of renown, or an erudite and popular teacher—he is not a successful practiser. This needed quality is something in the manner of the man—a something that inspires confidence in the patient. It is usually a combination of qualities, not always of the same elements and the various combinations are not all of equal value. At the last analyses, the one element common to all the combinations is well developed, but not hypertrophied self-esteem, or self-reliance. Unless the youth shows the disposition to be self-reliant, and the ability to arrive at fair conclusions based on accurate observation and to follow such conclusions with confidence, he will not make a successful practiser. With this element of character it is possible for him to be successful, should he possess the other qualifications in sufficient degree. Some of these are perseverance—better probably, dogged determination—to master whatever he undertakes; a love of truth, not as a principle of ethics, but as an incentive to get at the facts of knowledge; the fellow-feeling that makes one wondrous kind—a sympathy with man rather than a passion for autopsies. In addition every trait that tends to make a man honorable is available for one who is to pursue a profession so honorable as that of medicine.

If this phase of character is lacking, no amount of training can produce it; if it be present the consensus of opinion is that it can be developed. There is almost unanimity that the forces to train are rather personal than the result of following a curriculum.

Home influences, the personal contact with teachers and others are the agents at work. In addition the study of biography as intimated by Longfellow when he wrote,

Lives of great men all remind us
We can make our lives sublime,

and also ethics and of psychology are of assistance.

This part of our study reveals certain limitations in the remainder of our work. It will not do to rely upon individual instances. To say: There is an A. B. who failed in his state examination, or, there is a man who had but meager training and the world rings the praise of his successes and use these examples as arguments for or against any course of study.

The fact of the personality of the teacher must also be included in the statement of the proposition in such a way that it can be removed in the course of demonstration. Probably by a method similar to that employed by the mathematician when he differentiates an equation. While Mark Hopkins and a pupil at opposite ends of the log make a college, the usual and ordinary institution would fail if projected upon these lines. The article of President Hadley to which reference has already been made is very suggestive as to teaching and making it more effective. The influence of the teacher is greater than the power of any curriculum. At the same time, there are principles underlying the proper curriculum, which will cause one who has followed it to be more uniformly successful if the teachers can be fairly classed as able and honorable, representing the average of their profession.

Having then a youth self-reliant, persevering, thorough, who, possessing a receptive mind and a retentive memory, manifests a love for the study of facts, and is withal thoughtful for the comfort of others, we have an embryo showing at least the "Promise of function," capable of yielding a successful physician under proper training of mind and equipment of facts.

III.

MENTAL DISCIPLINE.

The threefold division of this subject, as outlined by your

committee, is too arbitrary to allow of the exact separation and classification of the elements which, combined, should make up the character and mental equipment of the neophyte in medicine.

It is, we believe, valuable in simplifying this complex study and developing the idea that the final results sought after in this as in any proper educational system are in the order named: character, culture, knowledge.

Possessing the proper character, the something found in the physician which makes success possible, what mental discipline is essential that the embryonic physician may commence the study of his profession with the greatest promise of success?

How may this discipline be acquired?

In seeking to answer the first question, your committee finds that there is a remarkable consensus of opinion among the majority of these who have taken part in this discussion.

While there is variety of expression, there is unanimity of sentiment. Our embryo should have learned to read to advantage, to observe accurately and to interpret honestly and carefully the results of observation. He should have learned how to study—to take up a subject and master it, to think logically, to reason, and to retain in his memory the result of observation, of study, and of logical thinking. We will quote a few of the answers received to the question, "What mental discipline is essential that a student may profitably benefit by a medical course?"

He should have acquired, "The habit of concentration of thought and the ability to analyze and classify so that the memory may retain facts and the mind utilize them."

"Observation, memory, and reason must be special objects of discipline."

The objects of mental discipline should be, "Trained observation and ability to reason logically."

"Cultivation of observation, comparison, deduction, and induction, memory and judgment. The best mental discipline is that which produces a capacity for close and accurate observation and the ability to compare and correlate the results of observation so as to arrive at a sound and true conclusion."

In answering this second question, in our inquiry your committee feels warranted, from its own convictions and as reflecting the weight of opinion in the replies to its inquiries, in saying that the doctor needs the same mental discipline required for the lawyer, the clergyman, the teacher or the engineer. He should be educated first as a man then as a physician. This preliminary education should be such as will develop, "Intellectual vigor, mental grasp, ability to comprehend statements, to follow a line of reasoning, to think clearly and closely," or in brief such as makes a man master of his own mind.

How may this discipline be acquired? Of about 100 answers received by your committee, a majority are emphatic in saying that the mental discipline which is essential that a student may profitably benefit by a medical course is best acquired by the course of study required in obtaining the A. B. degree in our best colleges or universities.

To quote from the replies received to this special phase of our inquiry, "Liberal arts course, in one of our smaller colleges, the true end of which is not the knowledge one may gain but the ability to 'use his tools.'" "The discipline of mathematics, history, philosophy, science, language;" "A. B. course of now-a-days, in the best colleges and universities;" "A course in a great university, I believe in a broad academic training. Specialization should not be begun in an academic course."

To summarize briefly then, the mental discipline required is that which will produce mental acumen, intellectual vigor, concentration, and accurate and logical process of thought, and is measured in large degree by refinement of life, by culture of sympathies and susceptibilities and by the development of capacities and powers.

The studies best adapted to produce these results are the hard studies, including mathematics, history, philosophy, logic, Greek, as well as Latin, modern language and the natural sciences.

Too early specialization is likely to limit the horizon of one's mental vision and early technical education to set a limit upon one's knowledge and exclude from him much that should belong to him as an educated man.

IV.

REQUIRED KNOWLEDGE.

Combining our arbitrary division and realizing its limitation we have now arrived at the last factor.

George Bancroft, the historian, was enabled through the kindness of some friends, to take a course at a German university after graduating from Harvard. In a letter to Edward Everett, shortly after his arrival, he writes under the date of 14—Ag.—1818: "The most important question with me is, how can I pass three years at the Georgia Augusta (the University at Göttingen) to the greatest advantage? The first object should be the general improvement of my mind, and the second, the acquisition of good learning." While these are the words of only a boy of 18, they are worthy of quoting. What learning should be acquired before entering upon the medical studies that the student may be fitted properly to pursue the medical course? There are certain preparatory studies, as a knowledge of his mother-tongue, a foundation of mathematics, etc., that are prerequisite for the study of any profession. These are not the class of studies to be considered here. On the other hand certain studies must have been pursued, if the student wishes to grasp the philosophy—the true import—of his medical studies, but are also of such general value to other educated men that they can be taught in general classes among the preparatory studies. These studies should be taken by the intending medical student as they give him the foundation principles upon which the specializing in the medical course is founded. The elements of these subjects can be taught more effectively when they are taught for the thing itself, and not as a means to an end, and should not occupy time in the crowded medical course. They include studies in physics, chemistry and biology.

The student entering upon his medical course ought not to require any instruction upon the elements of physics, the medical teacher should expect to be understood, should he speak of osmosis, without demonstrating it; should he wish to lecture on the medical uses of electricity, his time should not be taken up

with the elucidation on other electrical apparatus than the medical forms of it.

Then in chemistry, all of general chemistry, something of chemic philosophy, a working knowledge of qualitative analysis, enough of quantitative analysis to be acquainted with simpler methods and the usual apparatus employed. In the medical course, his chemistry should be confined to the technical solely, as physiologic chemistry and laboratory methods pertaining to clinical laboratories.

The same principles should prevail in the amount of biology to be studied; there should be enough to enable the student to take up the medical studies without the necessity of the medical department providing for this elementary, and non-specialized instruction.

Your committee recognizes the possibility of the teacher's influence upon the student enabling the employment of these studies to also furnish the mind, and to fit one to enter upon the study of medicine by the use of almost any combination of studies; and the other possibility of such are not fitted by nature to follow the profession of medicine. For the latter class, no provision can be made; for the former, no provision is necessary. But for the average student with the ordinary teacher a definite course should be pursued whereby the person of proper character should have a training of the mind, as suggested in the third part of this report; and, apart from this mental development he should have mastered the elements of certain subjects, so that the study of the technical application of these subjects in medicine may be comprehended by him, and not be acquired as a matter of rote. We present this preliminary report for your discussion. After your consensus of opinion is obtained, and you see fit, the effort will be made to formulate these conclusions more concretely in applying them to the individual college course.

APPENDIX.

Replies received to the questions sent out by the committee.

QUESTIONS.

1. *Character.*

What is the character to be desired of the neophyte in medicine?

To what extent can it be developed by educational processes? and what class of studies is adapted to bring it about?

2. *Mental Discipline.*

What mental discipline is essential that a student may profitably benefit by a medical course?

3. *Required Knowledge.*

What facts should be in possession of the intending medical student before he enters upon his medical studies? Can the acquisition of these facts be used to train the character and the mind?

A. Replies from Presidents of Colleges.

E. Benjamin Andrews, Chancellor of the University of Nebraska, Lincoln, Neb.

(1) Good physical health and physique, sobriety, veracity, strong will-power, love of study.

The best course of study can only half develop those characteristics. None can create these if they are not congenitally provided for. But a good course, such as our best universities prescribe for the A. B. or the B. S. will aid toward developing each of them. For my part, when there is time, I should urge intending physicians to take a course as nearly as possible like the old collegiate curriculum, Greek, Latin, mathematics, English and the accidence of a few sciences.

(2) The utmost benefit requires the four-year bachelor course as basis. Where so much is not yet possible, the nearest possible approach to it is desirable.

(3a) Latin and if possible Greek rudiments for nomenclature, good general courses in botany, zoology, chemistry and physics.

(b) Yes. Until young men have more time, or a greater time for preparations can be extended. I am in favor of allowing at least one year of medical preparatory studies, such as chemistry, zoology, comparative anatomy and even human anatomy to count toward both the liberal and the medical degree.

Kendric Charles Babcock, President of the University of Arizona, Tucson, Arizona.

(1) Not answered.

(2) A thorough grounding in at least two sciences, in Latin and in English, substantially two years at least of an ordinary college course embracing the three subjects mentioned. Better yet, let him progress to the A. B. or B. S.

(3)(a1) Thorough grounding in Latin, English and science.

(a2) The sciences should include elementary physics and chemistry through qualitative analysis.

(a3) A general course in physiology and biology.

(b) Most decidedly, yes, especially if taught by a real teacher who has knowledge, enthusiasm and inspiration.

William P. Brooks, Acting President of the Massachusetts Agriculture College, Amherst, Mass.

(1) He should be a man of the noblest character, purest morals and most sensitive conscience.

Dependent chiefly upon early home training and example. Have little faith in the possibility of its development to any great degree under the condition of modern college life by any studies whatsoever which can be there pursued. May be fortified by contact with men of the right stamp.

(2) His powers of observation, and of correct deduction and reasoning from observed facts should be cultivated to the utmost possible extent.

(3) He should have an accurate knowledge of his mother-tongue and know much of its literature. He should know French and German and enough of Latin and Greek to help him in understanding scientific terms.

He should have a thorough grounding in chemistry, botany, physiology and zoology. These sciences should have been so taught as to have cultivated observing and reasoning powers and strengthened judgment.

M. H. Buckham, President of the University of Vermont, Burlington, Vermont.

(1) A certain degree of maturity—sufficient for making an intelligent choice of profession—to appreciate at once the difficulties and the attractions of medical studies—to know that success can be had only at a high price and to be willing to pay that price, in labor, patience, sacrifice—character enough to be able to take long views ahead—not to be easily disheartened by obstacles.

The studies adopted to produce this character are the hard studies, those which require severe applications and industry, and especially those which are not professional.

(2) He must learn how (I) to study, that is, to concentrate his mind on a topic and get the mastering of it, (II) how to reason, *i. e.*, to follow a subject with logical continuity, (III) to hold results of study and observation in his memory, so as to have facts and principles ready for use when needed, (IV) to see both sides, or all sides, of open questions, and to reach conclusions with deliberation and fairness, (V) some power of expression so as to help clear thinking by clear statement.

(3) Mathematics, for exactness and precision, the methods at least of arithmetic, algebra and geometry. (2) Language, medical terms being largely Greek, with more or less Latin, at least an elementary knowledge of

these tongues. (3) Chemistry. (4) Physics, both, elementary and general, not technical. (5) Botany, ditto. (6) General and local history. (7) Enough of literature to have acquired a taste for good reading, for spare hours, for comfort in professional stress, and for making medicine a humanistic profession.

P. L. Campbell, President of the University of Oregon, Eugene, Oregon.

(1) I should say that the student entering the medical college should have clearness of vision and the habit of accuracy in his work. A good general college course, giving him some knowledge of what the world has already accomplished, together with sufficient laboratory training, ought to develop him in both these directions.

He should be thoroughly grounded in his English, have a sufficient knowledge of Latin and some modern language, and have mastered at least one of the sciences. For the sake of general culture, he should have had work in history and sociology. Other culture subjects would be so much additional gain.

(2) Breadth of culture that will make him understand the relationship of his profession to the needs of organized society, and an abundance of training in technic in laboratory subjects.

(3) He should be required to know English thoroughly well, being able to write and speak it with accuracy and fluency. He should also know Latin and some other modern language. He should have had preparatory training in chemistry and biology.

On the culture side, he should have studied psychology, history and sociology.

The study of all these subjects can be made most useful in developing the character and training the mind.

Charles W. Eliot, President of Harvard University, Cambridge, Mass.

(1) He should have the love of truth and the desire to be serviceable. These qualities are inborn, but can be developed by natural history studies, ethical studies, and biographical and historical reading. The elements of philosophy, political science, and sociology would contribute to the desirable development.

(2) He should get the mental discipline appropriate to a naturalist—thorough training in exact observation with all his senses, and in just inference from observed facts. Before he goes to a medical school he should have learned to speak and write English with precision, to read French and German, etc., to use the microscope and the common tools of chemistry and physics, and he should have mastered the elements of chemistry, physics, botany and zoology.

(3) It is not so much facts, as the methods of ascertaining facts, that the intending medical student needs to know. His best fields of work are sufficiently described in the answers to 1 and 2.

In acquiring the methods of science and the incidental information, both mind and character can be admirably trained—particularly to the love of truth.

Alston Ellis, President of Ohio University, Athens, Ohio.

(1) Emerson says that "*Character*" is the highest word at which philosophy has arrived. The aim and end of our being, is the forming of *right* characters. The work of school and college *helps* in the development of character but it is not all-sufficient. The home associations—in fact all associations outside the educational institutions—have their part in the building up of one's better self. One needs the safeguard of a good character wherever he goes and upon whatever work he may enter. The physician's morals, like those of the teacher and the preacher, should be sound and healthy to the core. A liberal education usually brings with it a strong, self-reliant, well-ordered character, but not inevitably so. Too little importance is attached to the matter by the instructors of the young. A strong mind and a good character form a desirable equipment for any one entering upon the activities and responsibilities of a business or professional life. The physician's relation to his patient makes it most desirable that he be more than a *quack* in scholarship, professional skill, and morals. The preacher, the teacher, and the physician, beyond all other professional classes need physical, mental and spiritual power.

(2) To rush into the professions before acquiring a fair quantum of school and college training is to court failure. The few exceptions but strengthen the statement made. All thoughtful teachers look with approval upon the tendency to require a more liberal culture from those seeking to enter the so-called learned professions. The unlearned minister is out of place in the pulpit; the doctor of meager scholarship is a drawback to his profession and a menace to the health and life of his patients. In many states of the Union, medical colleges admit students with but little scholastic preparation beyond that gained in the common schools. This is wrong to the student and to the public. This entrance standard brings desrepute upon the institutions which permit it. A college course, liberal arts, will bring, in most cases, the mental discipline most servicable to the one who desires to enter upon a course leading to the M.D. degree. That course should cover a period of *four* years. Within that time, the student should devote himself to the general acquisition of knowledge rather than to a study of a few selected branches thought, by him, to have special relation to the professional work he has in view later.

(3) The range of human effort in the realms of knowledge is wide. To cover the whole field, in any lifetime, is an impossibility. Putting bounds to educational ⁷effort is a necessity. There is a general culture, however,

that has upon it the seal of wise approval. We are prone to specialize too early. Here haste makes waste. The world at large is not anxious to have mere fledglings in scholarship and medical skill at the bedside of the afflicted. Almost any study pursued with energy and purpose will bring mental power. Such power is really of great advantage to any one no matter what his station in life or what his activities may be. The prospective medical student should be able to know and use good English; he should have gentlemanly qualities; he should be able to *think*; and he should have disposition to *grow*. Attention to these things will almost inevitably bring desirable mind and soul power.

George E. Fellows, President of the University of Maine, Orono, Maine.

(1) Nothing less than the best moral character as vouched for by responsible intimate acquaintances should be permitted to a candidate. This, of course, may be somewhat developed by a college course under proper surroundings.

Studies in history, economics and ethics should be as essential as those in biology.

(2) Nothing less than is to be found in the usual college course of the best grade.

(3) The best course in biology that can be obtained, including laboratory work in zoology, embryology, etc. This class of studies may be made as useful to train the character and the mind as classics.

Arthur Hadley, President of Yale University, New Haven, Connecticut.

I find it somewhat hard to answer your questions in the form in which they are presented. The reasons for this are set forth at length in an article in *Harper's Magazine* for June last, under the title "Mental Types and Their Recognition in our Schools." I regret that I have not extra copies of the article at hand to accompany this letter. With this reservation I will do the best I can.

(1)(a) The possession of a scientific temperament.

(b) It is to be discovered rather than developed.

(c) Almost any class of studies taught in a scientific as distinguished from a literary or commercial fashion.

(2) The habit of exact observation and orderly arrangement of facts.

(3)(a) It is unwise to enumerate any particular set of facts as specially important, because what he needs is principles and habits rather than facts.

(b) The acquisition of facts does not usually train either the character or the mind.

G. Stanley Hall, President of Clark University, Worcester, Mass.

(1) One trait in the character of the young medical practitioner, which seems to me not often enough mentioned, should be a capacity for personal human

sympathy. By this I do not mean pity for pain or for the sick, but the capacity for a humanistic interest in individuals as distinct from interest in abstract medical principles or physiological processes. I believe men differ immensely in this, and that a sincere desire to mitigate suffering and to bring cures in the case of the particular patient, a quality in which women perhaps normally exceed men, should be cultivated. There is much in medical education that tends directly to weaken this capacity and to unfold a certain professional hardness of heart which places the interests of medical science above that of the individual patient.

The quality I have in mind I think is developed chiefly by the example of the instructors by the way they treat and feel toward the patients in hospitals. I do not think it can be cultivated by any special study, although it would seem to me that physiological and especially biological studies would favor it more than the modern conceptions that base so much upon physico-chemical ideas, and which is interested more in the pathological findings after death than in those disease processes which have no pathology.

(2) My own observation inclines me more and more to believe that there is a kind of biological and physiological habit of thought that is very distinct from, and perhaps more or less discrepant from, the physical and chemical principles so closely connected with these sciences, and especially with physiology. No matter how highly trained a physician may be, I believe that there is something in him always born, which cannot be made, that sometimes really gives insight into normal, and perhaps still more abnormal, processes, and which goes beyond the present state of science. I abhor the vagaries of mind curists, but profoundly believe that there is something in the relations of the mind with the body which the regular school of physicians does not sufficiently recognize, and which the mind curists are far too crude to ever be able to tell the world about. Perhaps some day there may be brought to light a psychology of disease which may help to the desired end. Happily, in the study of insanity, we seem now to be passing beyond the old Virchow principles—*Ubi est morbus*—and recognizing the value of more and more psychiatric systems in which no lesion can be detected.

(3) I would, therefore, see more stress laid upon the general principles of biology, and would have nervous and mental diseases made far more prominent than they now are in the medical curricula. Ours is a nervous age and land, and nearly every disease has increasing neuro-psychic symptoms. Do not also the principles of mental growth, as revealed in genetic psychology, especially in our new knowledge of adolescence—which ought now to be a medical specialty—have some value in thus training the character of the mind?

W. E. Huntington, President of Boston University, Boston, Mass.

(1) A thoroughly Christian character. This can be developed only by

largest and soundest educational processes—those that mould and strengthen all the powers of the man.

(2) A full collegiate course seems to be the most desirable preparation for a medical course.

(3) Facts such as enter into a college course; the more of them the medical student has mastered the better.

Thomas F. Kane, President of the University of Washington, Seattle, Washington.

(1) The same qualities of character are desired for the man entering the medical profession as are essential to callings of the first order, or for citizenship in general, for that matter.

The original character or foundation for character which the student possessed may be modified for his good in three different ways in school.

First, the nature of the subjects which he pursues. Under this head I should have strongest confidence in the so-called cultural subjects of the standard liberal arts course.

Second, the student's habits of mind and character finally will be modified more by the methods of instruction and study than by the subject-matter itself. For example, the subject of mathematics can be so taught that it is an ideal character-builder, and on the other hand, it can be so taught that it will have almost no beneficial effect on character.

Third, one of the greatest influences on character in an educational institution is the tone and atmosphere of the school and the associations that a student finds there.

Other things being equal, the student who has a college education, under circumstances that give him the benefit of these three agencies for character-building, has an incomparable advantage over the student who has not been in college.

(2) A hard and fast rule could not be laid down here. The maturity of the student would count almost as much as the amount of training that he had had in school. I should be inclined to think that a high school student might do rather well the work of an ordinary medical course, but the rule would be that a student with the high school preparation would be entirely outclassed after ten years by the student who had had a college training in addition to his high school training.

(3) If we assume that a student is going to take a regulation four-year course in medicine I think that he might start upon this course with a rather small equipment of knowledge bearing immediately on the subjects of medicine, if he had the general information and mental discipline which his general education would furnish. Almost any liberal arts course allows sufficient election to enable the student to select a sufficient number of the essential subjects relating to medicine to equip him for this course.

The product of the medical school that requires college training for entrance will soon outclass the product of the medical school that admits men from the high school, or with less definite preparation.

J. T. Kingsbury, President of the University of Utah, Salt Lake City, Utah.

(1) A love for mankind, a desire to do good, a sympathetic nature for his fellows, accuracy and thoroughness. All of these qualities cannot be developed in a few years or in one generation. I think they can be developed slowly through education. Probably science and mathematics as well as any subjects may help much to develop accuracy and thoroughness. The other qualities may be developed through literary subjects, history, social sciences, consistent theological and philosophical instruction and the inculcation of self-sacrifice by the study of ethics.

(2) I favor a general literary and scientific education before entering upon a medical course. If a four-year college course can not be very well required, at least two years of college work of a high cultural character is needed that a medical course can be made more valuable to the person pursuing it.

(3) Not answered.

F. S. Luther, President of Trinity College, Hartford, Conn.

(1) Same character as in any other line of work.

To be developed by impressing men with sense of duty and honor.

One class of studies as good as another.

(2) Discipline giving power of mental concentration and sustained attention.

(3) As many facts as possible—any respectable college course gives this—would recommend special attention to chemistry and biology.

Of course the acquisition of facts "can be used to train the character and the mind;" any other theory is merely an attempt to show that mental loafing is not as deadly as might be supposed.

It is not the nature of the study, but the nature of the studying that determines the value of resultant training.

Henry M. MacCracken, Chancellor of New York University, New York, N. Y.

(1) That commonly designated as the character of "a Christian gentleman."

To be developed by parental and home training such as is enjoined in the Bible.

In addition the training by the Christian church rightly given is of high value and by Christian teachers in day school.

To these I would add the biographies of those physicians who stood out as moral and philanthropic examples in the history of mankind.

(2) Such mental discipline as leads the student to study thoroughly as a man.

This discipline may be obtained by a student not going beyond the high school. It has been obtained by some who have not attended even a high school. But those who have got the highest mental discipline have ordinarily been college men, who have taken thorough drill in languages and literature, mathematics and science, philosophy and history.

(3) Those required by the regents of New York State are not too many or severe (see rules for Regents' Certificates). It is hardly possible for any one to acquire such a body of facts, without receiving in the process moral as well as mental discipline, yet there is no certain connection between the increase of knowledge and the improvement of the moral character.

George E. MacLean, President of State University of Iowa, Iowa City, Iowa.

(1)(a) The neophyte in medicine should have an established religious and ethical character as distinguished from a reputation. He should have made his supreme choice in life.

(b) The prime educational processes for this purpose should be begun in the home, continued in the church, and shaped in the school.

(c) The study of mathematics, of the English language and of some foreign language, and of history, philosophy and ethics will help to form the character desired.

(2) The mental discipline of a four-year standard high school course, supplemented if possible, by a full college course is desirable.

(3)(a) The high school and college course heretofore mentioned, with use of electives in elementary physical and biological sciences.

(b) The acquisition of all these facts under proper teachers will train the character and mind.

S. A. Martin, President of Pennsylvania College for Women, Pittsburg, Pa.

(1) Next to high moral character a well disciplined mind.

Nothing yet discovered is equal to the standard classical course of study.

(2) Not answered.

(3) No facts are useless, but most important seem to me to be those that develop the judgment, reasoning powers and conscience.

An adequate knowledge of chemistry and physics are presupposed of all medical students. Beyond these I doubt if any sciences are wisely substituted for the humanities in college.

Carl Leo Mees, President of Hope Polytechnic Institute, Terre Haute, Indiana.

(1) (a) Strength, purity, refinement, firmness, temperateness, self-control,

sense of duty, patience, sympathy, tolerance, cheerfulness, studiousness, persistence, a certain degree of optimism.

(b) To the extent of 50 per cent.

(c) History, social and political (not in the chronological sense); literature, classical and romantic (from the humanitarian standpoint more than from the critical side); psychology; logic (not formal only); anthropology; social science (in a broad sense).

(2) Power of observation, attention, training of perception in accuracy and quickness. Logical arrangement of material of observation.

Power of concentration.

Development of will-power.

Tenacity of attention.

Unprejudiced attitude in observation and perception.

Abstraction.

Avoidance of the subjective element in study.

Power of logical deductive, as well as inductive reasoning.

Correlation.

Memory.

(3) Biological science with special reference to evolution.

Botany and zoology.

Physical Science.—Metrology, elementary mechanics of solids and fluids (usually neglected); molecular mechanics, with special reference to solution, to osmosis, etc., optics; acoustics; heat treated from energy point of view; electricity, with special treatment of electrolysis.

Chemistry.—Especially laws of combinations and dissociation; dynamics of chemistry.

Mathematics.—Algebra, geometry sufficient to fully understand. Elementary theories of physical science.

Elements of Meteorology.

A Foreign Language.

Some Manual Training.

Some Drawing.

The acquisition of facts in subjects mentioned can undoubtedly be used to train character and mind if presented and acquired in a manner appropriate in collegiate education.

The studies mentioned under (1) supplemented by those of (3) constitute a good preparation for the medical student.

In my judgment, the associations and environment in a good college themselves constitute a splendid training in many qualities of character required. A physician who has missed this alone is seriously handicapped in the happiest and best practice of his profession.

William Merrifield, President of the University of North Dakota, University, N. D.

(1) High character seems to me not merely a most important, but an indispensable requisite for one who is to be a trusted physician. I believe that character, as truly as culture or discipline, can be acquired by the right sort of schooling. While all the studies of a good high school and college course contribute in varying degrees to formation of right ideals, which are foundations to high character, I believe that the best training for character in school comes from intercourse with instructors who are themselves men of high ideals and right character. Such men will create in any institution of learning the sort of moral atmosphere which makes for high character on the part of its students.

(2) I should say such mental discipline as may fairly be expected of a student who has successfully completed a four years' high school course and the first two years of a college course in the college of liberal arts.

(3) I cannot, perhaps, better indicate my view of the kind and amount of knowledge desirable if not necessary for one entering the medical school to possess than by stating our own requirements. These are in brief the completion of a four years' high school course and the first two years of a four years' college course. I send you under separate cover a copy of our university catalogue in which are marked the pages stating our scholastic requirements for admission.

D. B. Purinton, President of West Virginia University, Morgantown, West Virginia.

(1)(a) A character including integrity, a feeling of responsibility, a love of truth, and professional ambition.

(b) All character is developed by educational processes.

(c) Culture studies are preferable, but any useful branch of learning contributes to the general result.

(2) Power of clear and ready perception, alertness of attention and mental concentration, possibility of sustained effort, and some fair degree of power in thought and analysis.

(3)(a) The medical student should have a good English education and at least an elementary knowledge of Latin, mathematics, physics, botany, and history.

(b) These acquisitions are both character-building and mind-training.

Isaac Sharpless, President of Haverford College, Haverford, Pa.

(1) No character can be too high or serious for a medical practitioner. I do not know that any particular class of studies will inevitably bring it about. It comes, to a certain extent, as a reflex product from the character of the faculty of the college, and the general attitude toward moral and social questions which the student finds there. Inasmuch as I believe that a higher tone in these matters exists in college life than outside, I should say that the college degree in this respect was an important factor in the preparation of a medical student.

(2) The mental discipline which a medical student needs seems to me to be the capacity to look with absolutely truthful eyes upon every problem which arises, and the broad grasp of mind which enables a man to weigh carefully and judiciously every factor in the case. This is produced by a course of study not wholly, but largely, scientific.

(3) Facts I should consider to be of secondary importance. They can be gained by any course of study which will train the mind. The special facts needed can probably be acquired after entrance to the medical school, but a general knowledge of those facts which make up the common property of educated people is extremely desirable. The proper acquisition of such facts is necessarily accompanied by a training of the character and mind.

John S. Stahr, President of Franklin and Marshall College, Lancaster, Pa.

(1) A well educated, thoroughly disciplined man. This means trained powers, mature judgment and a good knowledge of men and of affairs in general. He ought to possess (1) ability, (2) culture, (3) character. These requisites imply thorough education. I believe that the regular college course is, on the whole, best adopted to secure the desired qualification, including as it does languages and literature, history, mathematics, science, psychology, ethics, etc.

(2) He should be able to observe, to compare, to judge, to enter with sympathy and application into human life in general, and to have such knowledge of arts and science as will enable him to understand and appreciate the special forms of study which are included in his medical course.

(3)(a) Language, literature, history and social science. (b) At least a good foundation in mathematics. (c) Psychology and ethics. (d) Physics and chemistry. (e) Botany and zoology, or the biological sciences in general, including a fair knowledge of physiology and human anatomy.

I believe that the student who has a preliminary training of the kind indicated will accomplish twice as much in his medical course as the one who lacks such training, and will enter upon his profession with a wider outlook and higher ideals.

R. P. Stoops, Head of School of Medicine, University of Oklahoma, Norman, Oklahoma.

(1)(a) Individual should be self-reliant, honest with himself, and capable of attention to detail.

(b) Cannot be developed in some (slovenly) students; if above qualities are present they are best brought out by intimate contact with a teacher of strong personality.

(c) Laboratory courses under direction of enthusiastic instructors.

(2) Students should have a good training in such morphological studies as biology and zoology, with as much attention as possible to chemistry and modern languages.

(3)(a) A good working knowledge of German. One or more years of Latin. A fair knowledge of general and qualitative chemistry, also physics. Biology and zoology.

(b) Yes.

William Stryker, President of Hamilton College, Clinton, N. Y.

(1) Persistency.

Patience.

Purity.

Character is implicitly influenced by contact with noble and sympathetic minds. Explicitly by that discipline of the will in choice and tenacity, of which strong books are a tributary.

Mathematics and logic—all languages and never omitting Greek upon which technical terminology of medicine bases history.

(2) All he can get. It should be inferior to no profession. An A. B. as indispensable as to a preacher.

Short cut a blunder.

(3) Just such studies and facts as he will never find in a medical course proper. In college a man should elect away from his specialty to be.

It is the last chance to broaden rather than sharpen his knowledge.

Francis P. Venable, President of the University of North Carolina, Chapel Hill, N. C.

(1) Strong } by early training and thorough } classics, mathematics
earnest } parental discipline accurate } and sciences.

(2) A good high school course and at least two years of college work.

We are unfortunately not in a position to require the latter.

(3) Mathematics through trigonometry; Latin; easy sight-reading; French or German, probably both; chemistry, general course; physics, general course; biology, general course.

E. D. Warfield, President of Lafayette College, Easton, Pa.

(1) The character of the physician should be that of the Christian gentleman. This involves the finest culture of mind and heart. No one can pretend to an exclusive prescription for the making of such a man. This much must, however, be evident to every one. It requires good material to begin on; honest and intelligent effort; and time. The present age is too much given to experimenting with new substitutes for well tried methods of training, and to undue haste. A character which will bear the strain of a busy doctor's life and grow more and more serene and confident can only be built by honest and long-continued labor. It must be patient and tender, resolute and self-confident, alive to the value of human life and assured of a yet larger life rooted in the pure and wholesome living of the life that now is.

All early education should be mainly directed to the making of such a character, the habit of truthfulness, of definite application to a given task,

of accuracy in the performance of every duty. The great value of mathematics and the linguistic studies in early life is to be found in the material they supply for inculcating accurate and definite habits of working and thinking, and a fabric of continuous growth with parts so related as to render the progress of the idle and the vague impossible.

In later life all forms of philosophy tend to develop character; history, "philosophy teaching by example," the knowledge of what man is and has done; ethics, the relation of man to his fellow man; religion, the philosophy of philosophies, the relation of man to God.

(2) There is no training so well tested and so widely accepted as the so-called classical course. Fundamentally, a course in Latin, Greek and mathematics, but involving in the study of the classics a good introduction to literature, history and philosophy, and in the study of mathematics, to mechanics and physics, it possessed breadth, definiteness and variety. Enriched as it has been in recent years by additions from modern languages and literatures, and various departments of science it is uncomparably the best training for the professional man. The great difficulty arises from the lack of agreement as to the amount of the added studies and the way in which they can be incorporated. Personally, I would prefer to make the course through Sophomore year to consist of the older disciplines, and to retain in the later years so much of the philosophical studies as will at once supply the element of character-building and force the prospective physician to think along other lines and by other processes than those demanded by his chosen profession. The deductive or inductive processes being thus balanced, the student grows into a stronger thinker. In this day when the inductive method is so widely, and often so recklessly used, the continued study of deductive methods has become extremely important. It is perhaps easiest to secure the study of history, literature, and general courses in philosophy. It would be well for the accurate thinking of our future physicians if they could be led to combine the continued study of the classics and mathematics with their biology, botany and chemistry.

(3) Perhaps the most important set of facts for the medical student to begin with are the facts which are fundamental to the objects on which he is to operate; the facts of human nature. It is the knowledge of man as man which a broad education gives. The mind is too much fixed to-day on the knowledge of man as an animal. Hence we have biology entirely supplanting psychology, or reducing it to physiological psychology, which, as usually taught, is little more than brain physiology. But it is undoubtedly true that with the immense growth of the natural sciences and the progress in exactitude in the methods of studying them, that it is highly desirable that every student should have good courses in general biology, botany, chemistry and physics, before he takes up his specific study of medicine. Not only should he have the subjective knowledge of the elementary facts

of these sciences, but, as he can advantageously acquire in college the methods of investigation used in them, he should know the laboratory practice so as to carry on his studies independently. To these may well be added introductory courses in anatomy, especially comparative anatomy.

Of the cultural value of such studies when seriously pursued by students of adequate maturity there should be no doubt. The danger to the prospective physician is chiefly in too early specialization. On the other hand, there is room for serious criticism of the courses of so-called science in our schools, where the science is taught in the fanciful and unsystematic form known as "the fairyland of science," or in an unscientific way, for some other than a scientific object, all of which gives the child false ideas of the nature of science and scattered facts to which they have no classificatory key.

For the formation of character the sciences seem to have no capacity. The laboratory withdraws man from society, and laboratory studies from the contemplation of action. Often the scientific recluse is notable for qualities of ineffectiveness, gentleness, and goodness, which are truly admirable, but they are usually accompanied by a shyness which is fatal to the success of the man in society. The physician must seek elsewhere those elements of social power so essential to the practising physician, the helpful citizen and the wise counselor.

Benjamin I. Wheeler, President of University of California, Berkeley, Cal.

(1) Honesty, cleanness of person and thought, generosity of temper, unselfishness, patience, control of appetites and moods, level judgment, pleasant manners, quiet speech, neatness in dress.

All of these things issue from good education, otherwise education is of small worth.

(2) The mind will take care of itself, if you will only be decent and keep yourself and your mind decently employed.

(3) He should certainly be able to read German and Latin, and ought also to know French, if possible. The method of the fundamental natural science should be familiar to him, and he should have a general acquaintance with the substantials of chemistry, physics, zoology.

The study of the humanities however (social science, history, philosophy, literature, language) has a far better influence in cultivation of the judgment.

B. Replies from Deans of Colleges.

E. A. Cobleigh, Grant University, Chattanooga, Tennessee.

(1) Perfect morality, so far as possible, which has been brought about by preliminary discipline.

This means early moral drill in every direction, and this is attained generally by the training of modern educational institutions, in every manner adapted to reach this purpose.

History, mathematics and ancient languages—coupled with school discipline—tend (probably) best to meet these indications.

(2) I have probably anticipated this subject by my previous answer and specification.

Indoctrination of the sense of personal possibilities, and responsibility, in every manner possible; plus all training which draws out, to the utmost, the mind of the pupil—logic, philosophy, mechanics, rhetoric, history, etc.

(3) His mother-tongue—particularly. Physics, chemistry, philosophy, mathematics, ancient and modern languages, ancient and modern history—the branches, also, hitherto mentioned—all of these tending to broaden the individuality and make the student aspire to a higher plane, himself, for greater usefulness in the every-day world, besides making him ambitious and self-confident, and aware of the necessities of his era and environments.

Yes, mind-training is indispensable, in this process.

John M. Dodson, University of Chicago, Chicago, Ill.

(1) It goes without saying that as to the moral character of the students and practitioners of medicine, it should be the highest that it is possible to secure. The medical schools have pretty uniformly demanded that certificates of good moral character signed by two or more reputable physicians be presented by each student. This by no means affords a certain guarantee of character as even though the student on entering the medical school has shown no evidence of weakness or perversion of character, he often succumbs to the temptations to which he is subjected. I know of no means by which a perfect or even a very high degree of assurance can be had as to the moral character of medical students, but when Medical Faculties in general come to be impressed more fully with the sense of their obligations to the student and to the profession when they realize that selfishness and self-interest on the part of the Faculty has absolutely no place in a medical school any more than in any other educational institution; when the eagerness to secure large attendance is replaced by the determination to secure none but men of high quality, both mentally and morally, then a much closer supervision will be exercised over the admission of students to medical schools and a stricter watchfulness on the moral fiber as evidenced by their deportment and development in the medical school. The evidences of weakness in this regard, which are now overlooked or winked at, will be acted upon promptly and the undesirable men eliminated. It is unnecessary to enumerate the various qualities which should be found in every medical student and practitioner. They are comprised in the statement that every man in the medical profession should be an absolutely honest, cultured, unselfish gentleman.

As to the degree to which character of this sort can be developed by educational processes and the courses of studies adapted to bring such results about, I should say that this is almost entirely a question of the personal

influence of teacher on pupil. The intimate personal relationship which the earnest inspiring teacher is able to bring about between his students and himself and the influence of his own example and personality on their development is vastly more potent in the development of character than all the class-room work, laboratory work or other exercises which comprise the curriculum. To a certain degree the process of mental development has to do with moral character. What this process should be is sufficiently answered under question 2.

(2) A proper discussion of the mental discipline which is essential that a student may profitably benefit by a medical course involves the whole scheme of education from childhood. In my judgment the best preparation for any vocation demands fundamentally a system of training which up to a certain point should develop the mental faculties to the end that a well-balanced and well-proportioned mind may be secured. The educational period up to and including the Sophomore year of the usual college course should be planned with this end in view. This by no means implies that a uniform scheme of education and a uniform curriculum should be applied to every student. On the contrary to get the best results, a considerable latitude of election, or, perhaps better, of selection should be provided, *i. e.*, the adjustment of the curriculum to the individual should be solely for the purpose of strengthening each individual where he is weak. For example, a student who is weak in mathematics should receive special attention as to development in this line, not neglecting, of course, the other lines in which he is strong, for instance language, but a special effort being made to bring up the weaker faculties to the level of the stronger.

From the beginning of the Junior year, at which time the average American student would be about 20 years of age, the course of study should be shaped to meet the definite purpose in life which the student has decided upon, though the general educational value of these subjects should still be a conspicuous factor in that selection. In the line of medicine the two years from the beginning of this second period are more advantageously treated as a transition period from the general to the specific, the subjects pursued including anatomy, physiology, bacteriology and pathology with their various subdivisions in general science and being taught from a broad scientific standpoint. At this period such reference as is made to the specific application to medicine should be merely incidental. As these subjects are emphatically of an educational character they properly are included among the elective branches from which a student may select the studies which constitute the work of the Junior and Senior years in the arts or science course. At the same time they are exactly the subjects which properly constitute the curriculum of the first two years of the medical course. This makes it possible and of advantage to overlap or telescope the general college and the medical course. It is not wise to do this, however, in the case of every student.

Some students need three or four years of general college work before taking up the medical branches at all. Just the amount and character of the curriculum at this time must be determined for each individual student.

This general statement affords a basis for a more specific answer to question 2. Briefly, the mental discipline which is essential that the student may profit by the medical course is that which shall make of him a well-balanced individual with all of his mental faculties proportionately developed, and which, by the requisite amount of laboratory work and careful, physical culture, shall develop his mento-nervo-muscular apparatus to a high degree and make him, in so far as possible, master of himself.

(3) In answering question 3 I would emphasize the fact that while it is desirable that certain facts, especially those of physics, chemistry and general biology, are very directly related to medicine and therefore should be in the possession of the student, these facts should not be secured at the expense of the thorough mental training and broad general culture which is the prime purpose of education and its most important function up to the end of the Sophomore year.

Medical students need quite as much to be masters of English and of at least one other language, preferably German, to be thoroughly grounded in mathematics, and to have a good knowledge of history and general literature, as they need to know those specific sciences which are immediately fundamental to the medical branches. I believe that the medical schools are in danger of demanding too much of this specific and too little that is of the general educational character. Of the specific branches, however, which a student ought to have covered those mentioned are the important ones. He should have a reading knowledge of German and if possible of French. He should have had one year of high school and one year of college physics; one year of high school plus one year of chemistry, and a thorough course in general biology, all of these courses being largely in the laboratory. This work can all be done in the high school and the first two years of college and still give a large amount of time for the literary and mathematical branches.

Henry Gibbons, Cooper Medical College, San Francisco, Cal.

(1) Morality, honesty, decision and industry are specially to be desired. I believe these are better established by university training in letters or science, but it is a grave question with me whether it is just to require, in this country a university degree, before entering upon the field of medicine. While university training is ideal, it is not fair to require it for all. No man with university training is likely to bury himself in any of the many small places on this coast, and in many parts of the United States, where physicians are needed and where those of less erudition may do excellent work—are far better than none. It seems to be that at the present time, we should not go beyond the high school requirement as the minimum. Compared with the work prior thereto, we have been racing in the last fifteen years.

(2) That resulting from careful instruction in English, mathematics, physics and chemistry, and Latin to some extent, as a foundation.

If the student pursue a university course preparatory to medicine the result will be somewhat as follows:

Age of beginning.....	6 years.
Examination grades.....	8 "
High School.....	4 "
University.....	4 "
Medical College.....	4 "
Hospital.....	1 "

—
27 years

This should be shortened two years by combining the work of university and medical college so that while having the university training the student in a three-year course is getting the equivalent of one year of medicine. Then three years more in medical college should entitle to the two degrees B.S. and M.D.

I think all students should be offered this opportunity, but do not think it should be made compulsory at the present time.

(3) Those obtainable from the usual high school course, including physics, chemistry, Latin, biology, and possibly some others germane to medicine as botany.

I think they can.

M. V. Lynk, University of West Tennessee, Jackson, Tenn.

(1) First, the highest degree of integrity, patient and sympathetic. Second, we might say 50 per cent. Third, moral sciences.

P. S. The questions on this page are not clear in meaning to me.

(2) I believe intense memorizing to be harmful. The student should be given an opportunity to slowly digest, or thoroughly comprehend what he passes over. An average of four hours per day I believe to serve the purpose best in most cases.

(3) First, he should thoroughly comprehend arithmetic, algebra, geometry, physics, history and composition: the general theory of language and above all, he should know how to study.

Second, yes.

L. C. McElmer, Homeopathic Medical College of Missouri, St. Louis, Mo.

(1) The character of a medical man can only be human after all and I think should be moral so far as morals are concerned.

The extent of its education is always problematical but depends on the texture of the individual.

Logic as applied to human acts with special clinics of cause and effect.

So far as I have seen. Only the regenerating power of the Holy Ghost has been sufficient to make any radical changes in the morals of anybody.

(2) Comparative anatomy, Greek and Latin.

(3) An ordinary high school education is sufficient—many eminent physicians have had much less. But a high school education is certainly better for the masses. The mind, yes, but the character must be established at the mother's knee.

W. R. Phillips, George Washington University, Washington, D. C.

(1) The character to be desired in the neophyte in medicine is honesty in thought, word and deed; consideration for the feelings of others, gentleness and at the same time firmness. I do not know of any studies that will bring about this character. Apparently it must be born in the man; it cannot be acquired. Probably every person has more or less of this character and by association with persons of more developed like character, may develop his own. I cannot answer what class of studies will bring about this development except perhaps selected biography.

(2) The mental discipline essential to the student for the profitable study of medicine seems to me to be practically the same kind of discipline that one would expect in the study of mathematics, logic and physics. Ability to concentrate the mind, to reason logically and to verify one's conclusions by experimentation seems to me the kind of discipline that should be cultivated for a doctor.

(3) The facts that should be in the possession of the intending medical student are practically indicated in the preceding answer. He should understand mathematics at least to include trigonometry. It would be well for him if his mathematical education should even go farther and embrace the calculus. He should have had a course in logic and a course in physics; he should also have general chemistry. It would be well likewise that he should study botany or zoology, that is, the elements of either. Above all things he should be able to write his mother-tongue correctly, be able to express his own ideas clearly and in idiomatic language. It would seem to me that the acquisition of this knowledge could not fail to train the mind.

Robert Reyburn, Howard University, Washington, D. C.

(1) High moral character which should be developed in the home.

(2) Thorough English education with at least the knowledge of Latin and Greek, modern languages also if possible.

(3) In addition to a thorough English education he should be conversant with the natural sciences and know something of the use of the microscope.

John Rogers, Cornell University, New York, N. Y.

(1) Maturity.

It can best be developed in the usual "college" (A.B.) course.

Natural science includes all the best preparatory studies.

(2) The best mental discipline is that given in the A.B. course.

(3) The essential facts in a clear understanding of mathematics, physics, chemistry and biology.

John Scudder, Secretary of the Eclectic Medical Institute, Cincinnati, Ohio.

(1) Good character is an absolute necessity in a medical student. It can be developed by educational and general surroundings.

(2) The mental discipline obtained in a previous course of not less than a four years' high school standard is necessary to proper medical work.

(3) A knowledge of elementary sciences is more beneficial to a medical student than a purely classical training, yet a graduate of a classical course in a standard literary college or university is not to be despised.

John P. Sutherland, Boston University School of Medicine, Boston, Mass.

(1) Upright, earnest, unselfish, with a strong desire to be of use to humanity; ambitious to acquire knowledge.

If one has inherited tendencies, education will undoubtedly be of very great assistance in the development of this character.

Ethics, philosophy and the Bible.

(2) Anything that develops the power of patient methodical application to duty.

(3) Essentially the facts connected with physics, chemistry, and biology. Mathematics, logic, languages, history and literature will furnish invaluable knowledge to the medical student, and the acquisition of this knowledge will certainly be of value in the training of the character and the mind.

James W. Ward, Hahnemann Medical College of the Pacific, San Francisco, Cal.

(1)(a) Elements of early developing good character.

(b) This tends to earnest efforts.

(c) Philosophy.

Physics.

Broad general reading especially of biographies.

(2) A training in concentration of mental faculties.

(3)(a) A knowledge of sociological conditions of the race.

A fundamental knowledge of the sciences, especially biology

(b) Yea.

Harold Williams, Tufts College, Boston, Mass.

(1) Patience, self-reliance; capacity for, and desire to, work; earnestness; accuracy; power to observe correctly and to think and to express thought

logically. The medical preparatory courses given in our colleges seem to me the best preparation for the study of medicine. Such courses usually embrace, Latin, algebra, and geometry. Biology, chemistry, physics, English, French and German.

(2) Powers of application and concentration of mind. He must have learned to think logically and to express his thoughts in good English.

(3) Other things being equal I think that the more a student has acquired of general knowledge the better he is prepared for the study of medicine, but to think it highly desirable that the average student should enter upon his medical studies before he is twenty years of age.

W. Henry Wilson, Registrar of Hahnemann Medical College, Chicago, Ill.

(1) Scientific honesty.

It can be largely developed by biological studies and physics.

(2) In inductive reasoning.

(3)(a) Biological sciences.

Chemical sciences.

Mathematics.

History.

(b) Yes and furnish the data also for correct reasoning.

F. M. Wright, Secretary of the Eclectic Medical College, Indianapolis, Ind.

(1) A physician is born and not made.

(2) Too much literary training and discipline are a deterrent to a physician; his mind should not have anything in it that would cause it to be diverted from his chosen vocation; he should devote all of his thought to medicine and not divide the time with other sciences, which he is certain to do if he is versed in them; the larger portion of the practice of medicine to-day is worse than none and it is growing worse; I believe this is due to overeducation and not enough practical thought; I have proven this in my practice, having a large practice and only one death in eighteen months, that from apoplexy; all others got well.

(3) The most important fact that should be in the mind of the medical student, is, that he will enjoy the study and work and that he has a natural instinct for it and it is not money alone that is causing him to take up the study.

D. Replies from Fellows of the Academy.

E. Wyllys Andrews, Professor of Surgery, Northwestern University Medical School, Chicago, Ill.

(1) The character desired is that of a studious or bookish man with a scientific bent naturally seeking to make a hobby of some field in science.

He should have the research instinct, the love of knowledge which makes him want a scientific career for its own sake.

His mind should instinctively be that of an investigator or laboratory man. Medicine to him should be a branch of natural history. The laboratory spirit and the scientific man's horror of sham is far better than executive talent or "business ability" for a medical career.

(2) The broad discipline of the old classical education carried through the literary college up to the A.B. degree.

The discipline of scientific courses and modern language or extensive English courses is less valuable.

(3) A reading knowledge of French and German, a knowledge of Greek, Latin and humanities and not necessarily any technical or so-called preparatory medical work. Advanced chemistry, anatomy, etc., can be left to the medical course or the combined course can be shortened. The man who enters a medical school, classically educated, without advanced standing is the broadest in after life.

Edward J. Angle, Lincoln, Nebraska.

(1) Character cannot be expected to be very deeply rooted at this age, and in the main is more a question of heredity than environment of education.

The prospective student should possess all the cardinal qualities, among which may be mentioned honesty, conservatism, intensity of purpose, and liberal mind.

Such qualities are best developed by a study of the classics, literature, history and philosophy.

(2) A course consisting of the languages (ancient and modern) with specialization and the biological sciences.

(3) Largely the scientific work of the college course.

While science is useful in training the mind it cannot be said to influence character like classical and literary studies.

Theodore B. Appel, Lancaster, Pa.

(1) Self-reliance, cool judgment, liberal culture.

These qualities in my opinion can be well developed by the training and discipline both from faculty and student body in the liberal arts course, particularly in one of the smaller colleges.

(2) Answer 1 covers this to a certain extent. The true end of a liberal arts course to my mind is not the knowledge one may gain but his ability to "use his tools."

(3) A good general knowledge of science, literature and history. In my mind the technical points should be the part of university or medical education; on this ground I believe little good comes from the system in vogue at some colleges where a so-called preliminary medical course is given as an elective in lieu of certain facts of the ordinary classical course.

As to the second part of the question, emphatically yes.

Edward A. Balloch, Professor of Surgery, Howard University, Washington, D. C.

(1) I should say that a character containing as its principal elements a certain seriousness and steadfastness of purpose was the one best fitted for the study of medicine.

I do not believe that such a character can be developed by educational processes.

Education can show him the lines along which he can best proceed, but development must come from within and will not be materially affected by education.

(2) The best mental discipline, in my judgment, is that which produces a capacity for close and accurate observation and the ability to compare and correlate the results of observation in such a way as to arrive at a sound and true conclusion.

This implies and necessitates a knowledge of what has been done by others; in short, research.

(3) He should understand the elements at least of biology and natural science.

The facts therein contained should certainly train the mind but I doubt whether they would have much effect on character.

James U. Barnhill, Surgeon, Ohio Medical University, Columbus, Ohio.

(1)(a) Good moral character, good habits, conscientious regard for truth and the rights of others, sympathy, refinement, general culture; capable, responsive intellect, resolution, lofty purpose.

(b) Effectually developed in so far as the individual is capable.

(c) The humanities, sciences including sociology.

(2) That discipline which comes from refined home-training, association with educated cultured people and the education that may ordinarily be received from twelve years of elementary schooling (the public school course including the high school), and four years in college training in languages and sciences under capable Christian (Christian in spirit at least) teachers.

(3)(a) The facts of experience in a well-ordered home and community.

(b) Those of history (to considerable extent).

(c) Knowledge of one modern language besides his own and Latin and Greek. Rhetoric, logic, and philosophy.

(d) A mastery of the leading sciences as botany, physics, chemistry, zoology, geology, physiology, and psychology.

(e) Yes.

George Blumer, Associate Professor of Pathology, Cooper Medical College, San Francisco, Cal.

(1) If character be defined as the sum of the qualities which distinguish

one individual from another I would suggest that different qualities are needed for different specialties in medicine. In general, the following might be suggested: Honesty, good judgment, power to work (concentration), common sense, tact, earnestness, a sense of humor, patience, accuracy, order, imagination, and observation. In specialties like surgery, orthopedics and ophthalmology, a mechanical or mathematical term of mind is desirable.

In the laboratory worker the something which gives a man a faculty for research is needed. I do not know what this quality is—few possess it. Most of these qualities are innate and dependent on the home surroundings rather than on formal education. Of course, some of them could be developed by education, especially judgment, power to work, and the special tendencies (as a mathematical tendency) which fit a man for special work.

As to the class of studies needed to bring out different qualities this is a very wide subject. I think that the ordinary secondary school brings out some. If the work as at present carried on tends to stunt anything, I think it is imagination which is a very necessary quality in a physician.

(2) That which is usual in secondary schools and the academic departments of universities. I do not see how he is going to get any other unless we create special courses, and I think the scientific courses in our universities are sufficient.

Perhaps I do not quite grasp what you include under mental discipline.

(3) I should say that the intending medical student should know the sciences cognate to medicine in at least their leading principles. Especially, biology, botany, chemistry, physics. He should also have a good reading knowledge of French and German and at least an elementary knowledge of Latin and Greek.

If possible (and these requirements would of course mean at least two or three years in the literary department of a university) the student should also have a good knowledge of the English language. This does not seem to have been insisted on enough, it seems to me.

John T. Cahill, Lawrence, Mass.

(1)(a) The character of the neophyte in medicine should be one of kindness and sympathy and of strength. He is to deal with suffering humanity, hence he must know how to soothe and comfort as well as heal.

Strength of character is required that he may not be overcome by the misery with which he will come in contact. There is a question of a two-fold moral strength, one to bear the baneful influence of the misery that surrounds the physician to be brave when others are discouraged, to be hopeful and helpful when others are in despair; the other to resist the allurements of vice with which the physician comes in closer contact than any other professional man and to be proof against any temptation that may present itself of breaking any law of justice or of the Decalogue.

He should be a religiously conscientious man, to this extent at least, that

he respect in his professional service the moral convictions of his patients, namely in the matter of the generation of children, of preparation for death, etc., using no means that would be unlawful.

There should be a calm reserve about him too which will inspire in the patient trust and confidence to be frank with the physician and the assurance that such confidence will not be betrayed to others.

The spirit of the neophyte's character should be that of a benefactor to his fellow-men, not that of a money-maker, that is, he should be persuaded that the primary purpose of the physician ought to be to do good to humanity, not to grow rich.

There should be in this respect a great deal of altruism in his make-up. The physician should be pre-eminently a gentleman, one that respects himself and others.

(b) To what extent can such a character be developed by educational processes? I should say to an indefinite extent. Proper environment, association with the right sort of studies, books, companions, instructors, will necessarily foster the germ of such a desirable character.

(c) What class of studies is adapted to bring it about?

Broad, humanizing studies, those that impart what is called a liberal education. Specializing from the very beginning is hurtful to such a character, for it narrows the views and sentiments. It warps and dwarfs.

It may be hard to specify just what studies ought to be included in such a liberal education, but I think that the humanities as they are called, classical literature, history, art, some science of course and mathematics, and as a crown for all, a thorough course in mental and moral philosophy, would best develop such a moral character.

(2) The question does not call for the best mental discipline but for what is essential, that is, what is the minimum of mental discipline required?

I do not think that the ordinary high school graduate is qualified to profitably enter upon the study of medicine. One year of collegiate training at least ought to be required. Some can improve their minds in a preparatory way by dint of personal observation, reading and exertion, and might thus take up medical studies with profit without the formal collegiate preparation or even high school drill. However, the mental discipline essential for a profitable pursuit of medical studies ought to be that represented by at least one year of collegiate discipline. The ideal preparation ought to be the mental discipline represented by the degree of the college graduate.

(3) The facts the neophyte ought to be in possession of are the facts to be acquired by at least an ordinary course of chemistry, biology, physiology, and physics. He should also know certain principles and tenets of the natural law and of revealed religion what is morally right and wrong.

He should have clear and sound convictions on the spirituality and immortality of the soul, in order that he may not in caring for the body be

carried away by a gross materialism and thus neglect the higher and nobler aspirations of the spirit that looks to a hereafter.

Sound notions on abuse of nature, on marriage and the proper relations between husband and wife and kindred ethical and religious data should be acquired. A more or less profound acquaintance with Christian philosophy and ethics and theology will here be beneficial.

Proper pursuit of such knowledge will naturally tend to train the character and the mind, for such pursuits, besides storing the mind with useful and important knowledge, will invest the young medical student with a sense of the dignity and sanctity and responsibility of his calling.

Henry W. Cattell, Editor of *Medical Notes and Queries*, Philadelphia, Pa.

(1) No one without the moral instinct should study medicine. Fair play at games is as much of a criterion as high grades. The kind of studies really makes but little difference; it is the teacher. A totally different curriculum may give the same good (or bad) result. What I object to in our teaching of to-day is that individuality is lost sight of. There is a common mould for all, and woe to the poor youth who does not conform to it, no matter if it cuts off all originality of thought and action. It was just as well for Herbert Spencer that he did not go to the public schools, while Gladstone was no doubt benefited by so doing. Personally I favor botany, geology, biology, either Greek or Latin, rarely both, modern languages, and a thorough study of English. The reading of biography is most important in the developing of character.

(2) What has been said under character applies to mental discipline. The two go hand in hand. In the making of a rascal there is plenty of mental discipline. Indeed the brightest minds are apt to be at least politicians, if nothing worse. State medicine has revolutionized the practice of medicine, and our medical colleges are to blame for low standards of morals. So many more students so much more income, and a larger steal for an appropriation from the state. There should be one sort of training for its students with money who want to do original work and another for the ordinary individual who must work to live and studies to cure and prevent disease. Attention to details is the greatest mental discipline a student can have, be the details what they may.

(3) Few facts are really necessary, but those things which he knows he must be sure of. It is not facts that are wanted, but the ability to know where you can get at them with the greatest accuracy and with the least expenditure of time and energy. A German may have at his command twice the number of facts, but the American will make better use of those he is in possession of. It is one thing to know and another to be able to use knowledge for your own advantage and that of others.

Facts really do not train the character and the mind. It is the manner in which the acquisition of facts is obtained that makes all the difference

between success and failure in after life. A person may have totally forgotten his Greek and yet its training has been of inestimable value to his character and mind. Original observations make a man honest or show him up as a knave.

Charles V. Chapin, Superintendent of Health, Providence, R. I.

(1) It is assumed that a scientific physician is the product to be desired from the scheme of education. A different scheme would be needed for the would-be-successful physician. Character, as I understand it, involves moral characters. Industry and honesty are perhaps the most important. Such qualities are largely dependent on heredity. Scientific training does, I believe, make for honesty.

(2) Training furnished by the natural sciences is of the first importance in preparation for medical work.

A training in mathematics is of secondary, though of considerable, importance.

A knowledge of literature, art and history (the humanities) is perhaps not more necessary for a medical man than for others. Studies reaching to such knowledge are desirable. The study of Latin and Greek as ordinarily pursued is practically useless for this purpose.

(3) A reading knowledge of French and German.

As full a knowledge as possible of the principles of biology, the properties of living tissue, development, heredity, evolution, etc.

A fair knowledge of the principles of chemistry, physics and psychology. The acquisition of such facts is of the utmost value in mental training.

N. H. Chapman, Monte Vista, Colorado.

(1) Honesty, tact and aptitude.

Early religious family training and a good common school education.

(2) All things which in honor bind to the original oath of Hippocrates.

(3) A well earned A.B., PhG.¹ or B.S. from some school of good repute. Yes.

John Chase, Professor, University of Colorado, Denver, Colo.

(1)(a) If by character you mean "The individuality which is the product of nature, environment and habit," I should say that the character should be founded on morality and should be distinguished by "thoroughness" and a systematic attention to duty.

(b) The feasibility of teaching morality is too big a subject for this page. Thoroughness and a systematic attention to duty should be developed by every system of education.

(c) Chemistry and mathematics produce thoroughness, and early and strict military training teach the "systematic attention."

¹ *Sic*—possibly Ph.B. is intended.

As I understand your proposition you eliminate considerations of "culture" and the value of belles-lettres in preparing a man to take up his medical studies.

(2) As a minimum I should say the amount furnished by the average high school. I consider that any student will "profitably benefit" by a medical course, for I have repeatedly watched the development and growth of mentality in those who commenced the medical course with very little preliminary training, but I presume the question was to determine the minimum on which it is wise to build.

(a) Those implied by thorough course in physics.

(b) " " " " " " chemistry.

(c) " " " " " " biology.

(d) " " " " " " botany.

No exhaustive course could be given in any one of these as a minimum requirement. Any one or all can be used to train the mind.

Solomon Solis Cohen, Professor, Jefferson Medical College, Philadelphia, Pa.

(1) Close observation, broad view, accuracy, modesty, clearness of expression.

Scientific studies first, laboratory observation, physics, chemistry, astronomy, biology from ground up.

Second, humanities, with special attention to English classics.

Third, history.

Fourth, philosophy.

Fifth, mathematics.

(2) This is probably covered by previous answer.

The discipline of mathematics gives exactitude and logical method.

The discipline of history teaches human nature.

The discipline of philosophy teaches penetration, boldness, broadness, generalization, the danger of excessive detail.

The discipline of science teaches accuracy, the test of theory by fact, the inductive method, the limitations of speculation, the advantage of bold hypothesis.

The discipline of language teaches orderly thought and correct expression.

(3) Physics, inorganic chemistry, positively, organic chemistry if possible.

Elementary biology.

French, German positively.

(English of course.)

Latin desirably.

(Greek, if it can be acquired without neglect of science, gives a rounding and finish but it is not a requirement.)

The scientific work gives the best training, if with it goes philosophy.

George Cowan, Danville, Ky.

(1) "The character to be desired of the neophyte in medicine" is one composed of the very highest possible order of candor truthfulness—a love of the truth for truth's sake. Hippocrates rightly says "Medicine is of all the arts the most noble," and the following extracts from the "Oath" prescribed to those who came to him to be taught medicine are highly worthy of consideration in this respect. "With purity and holiness I will pass my life and practise my art. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion." Indeed the entire Hippocratic "Law" and "Oath" with certain modifications should form the basis of a course of lectures on medical ethics in every school of medicine.

(2) The formation of industrious habits and close application to whatever studies are engaged in from the primary schools up through our best high schools. In childhood kindergarden training and instruction, by competent masters of the art, would likely take the place of primary schools to some extent. College or university degrees alone are no evidence of fitness to study medicine, but are valuable according to the rank and standard of the institution conferring them.

(3) A sufficient knowledge of Latin and Greek, to be at home in the deviation and use of the special terminology of medicine and all auxiliary studies. Also a good knowledge of all the physical sciences except mechanics as applied in the arts.

The "acquisition of these facts" could be used to train the mind. Foreign languages (German and French) would be valuable but not indispensably necessary.

C. M. Culver, Albany, New York.

(1) One of industry, persistency and steadfast rightness. Educational processes include all influences that tend to develop good character.

"Most of a college education is gotten outside the recitation room."—*Andrew D. White.*

Whether fashionable or otherwise, the dead languages are a fit study for the prospective medical student. Mathematics give fine ideas of evolution, the relation of cause and effect. So do physics. Whatever the studies, among proper ones, their best purpose is to teach the brains how to work and its owner to know how to keep it "fit," and get the most out of it without overdoing the matter. *Cæteris paribus*, those studies are best that help most toward understanding the present needs of the race, *e. g.*, electricity (elementary), and the principles of sociology.

(2) That which constitutes a reasonable "training," it may have any of many forms. A first desideratum is to learn if to become a medicus is, for the person in question, the worthy purpose that each young person ought to have, as early after the age of sixteen as possible. Assuming that the

decision is favorable to devoting one's life to remedying the physical ills of one's fellows, the discipline, after that, ought not to be narrow, but always undertaken with the medicine's goal in view. There's nothing that a physician can know that cannot be used in behalf of patients. Narrow-mindedness is very undesirable, as a quality of a physician. Yet, a physician ought to devote the best that is in him, physical, mental or spiritual, to provide his fitness to fulfil his function as a healer of disease. Equipose ought to be maintained, all through life, and the pre-medical (ante-medical) education ought to facilitate this as much as possible.

(3) As much knowledge of history as can be acquired without injurious strain. Greek, Latin, French and German—the more the better. Chemistry, rationally considered, as far as is possible for a young person's elementary electricity and physics. That any one who is looking for "flowery beds of ease" is a fool to try to be a worthy physician and achieve the aforesaid beds simultaneously. That as Gen. Wood has said: "There's something besides money!" That *labor omnia vincit* or at least, comes nearer to it than anything else does. That to have a well defined purpose in life and to pursue it indefatigably, courageously, industriously and persistently is well for any one else. Keep as well balanced as possible! "No matter how poor you are, take six consecutive weeks, each year, during which you do no professional work!"—*Sir Andrew Clark* (to a medical class). For the earnest, honest student there is apt "training" in many kinds of preparatory courses.

Judson Daland, Professor, Medico-Chirurgical College, Philadelphia, Pa.

(1) The character to be desired in a neophyte in medicine is:

- (a) Love of truth in investigation.
- (b) Studiousness.
- (c) Reasonable seriousness.

The answer to question 2 will develop character.

(2) Mental discipline secured in obtaining the degree of A.B. from any of our best colleges, with special attention given in the last year to biology, histology, anatomy, physiology and physics as applied to medicine.

(3) A broad general education with especial attention to those subjects cognate to medicine as indicated in answer to question 2.

It is within the power of the teacher to make these studies influence favorably the character and mind of the neophyte. It is also desirable that logic should be taught while this knowledge is being acquired.

Gwilym G. Davis, Associate Professor, University of Pennsylvania, Philadelphia, Pa.

(1) As to character the proposed student should have earnestness of purpose, a moderate amount of ability in study and an absence of mean or vicious traits. This blocks out the dilettante and lazy, the densely ignorant and the unprincipled.

To have passed through the public schools (high school included) would be a fair evidence of possessing the above qualifications.

General studies and physics, chemistry and biology.

(2) The discipline given by the study necessary to pass the entrance examination for the department of arts in our leading universities.

(3) A high school education embracing inorganic chemistry, physics, biology, and ability to read medical French or German.

Thomas D. Davis, Pittsburg, Pa.

(1) One with true sympathies and high aspirations to serve his fellow-men and with an investigating observing mind. By constantly keeping before the student their motives and decrying more commercialism.

Many enter the medical profession simply to make money and of course failing soon prostitute our high calling.

At least a brief course in ethics.

(2) Observation, judgment, decision as well as memory are to be cultivated. Nothing yet tried equals the classic languages study, in developing their mental accomplishments. The study of Latin and Greek also is of great advantage to any scientific student on account of the knowledge of etymology acquired.

A course in logic is almost essential.

(3) Most colleges publish in their journals articles describing the advantages and disadvantages of each profession. Also the requirements and prospects of a profession. Having thus intelligently decided on which profession he will enter, if the medical profession, let him study the natural sciences and by all means a thorough course in psychology or mental philosophy. Leave all truly medical (or professional facts) to be taught by the professional schools.

Ethics, logic, psychology and the natural sciences, with a good working knowledge of the classic languages. In other words, a first-class college education.

Halsey DeWolf, Providence, R. I.

(1) Honesty, breadth of mind, persistence to a large extent.

A broad education, including history, literature and science.

(2) The discipline which teaches a man to be broad of spirit and accurate of mind. I believe a course in a great university, where narrowness and inaccuracy cause him to lose the prizes (in my sense of the word), is the most valuable mental discipline he can have. There also he learns to value as well as to judge his fellow-men.

(3) I believe that few definite facts help him. It is the knowledge of how to get and use facts, and a fair judgment of how to get and use them fairly that he wants.

Augustus A. Eshner, Professor in the Philadelphia Polyclinic, Philadelphia, Pa.

(1) Character is an expression of inherent qualities, essentially transmitted by heredity and developed by environment.

The neophyte in medicine should stand for the highest ideals in morals and in action. These can be encouraged by having teachers that stand for the same ideals. I know of no studies calculated to bring about such a result, unless they consist in a more intimate acquaintance with nature and her processes as exemplified in biology, botany, zoology, anatomy, physiology, physics, chemistry.

(2) He should be able to work. He should have a good memory. He should learn to think logically. He should be a good mathematician. He should be a physicist and a naturalist. He should above all be accurate and precise. He must know how to relax and rest.

(3) He should have a working knowledge in biology, botany, zoology, anatomy, physiology, chemistry, physics.

Such a knowledge will surely do much to develop character and mind in the proper direction. Medicine is of course only a specialized form of learning. The more thorough and the broader and deeper the preliminary general training the more secure must be the medical superstructures.

W. L. Estes, South Bethlehem, Pa.

(1) Perspicacity and acquisitiveness.

It may be developed to a great degree if the training be begun in early childhood. Latin-scientific.

(2) That belonging to the best public schools in the United States through and including the High School. Except for some of the so-called "literature" study, I would substitute two modern foreign languages and have literature learned partly in this manner. Besides I would suggest in addition a thorough advanced course in chemistry and physics.

(3) Besides the elementary ones which he will have acquired in his training through a graded Latin Scientific course. I think some working knowledge of biology and comparative anatomy should be included. Especially a student ought to know how to observe and to construe the evidences of his senses, especially those of his eyes.

I think this acquisition would itself be a liberal training to the character and mind.

Horace Y. Evans, Philadelphia, Pa.

(1) Godly! and as a legitimate sequence, honorable, detesting shams, love for his kind.

A receptive, thinking and inquiring mind.

Developed by any liberal education. Studies, mechanics mathematics, natural history, physiology, languages.

(2) Memory, concentration, zeal, enthusiasm and a determination to know all that can be known.

(3)(a) That the medical profession is one in which very few acquire financial success.

That the calling demands patience, equanimity and courage. That the science of medicine is not an exact science.

If the neophyte is willing to battle in the face of these facts he will become a hero and a victor.

P. J. Farnsworth, Professor, University of Iowa, Clinton, Iowa.

(1) In the old college days of fifty years ago, when men fought principally for "marks" it was a matter of common observation that the class divided into linguists, mathematicians and scientists. The scientists were in the minority because there was little in the course and small marks and they generally became physicians because in those days it was about the only outlet for one of such tastes and because they were otherwise not so well qualified for ministry and law.

Give more credit for science, make its marks as valuable as classics or mathematics, discard Greek and a part of mathematics.

(2) Cultivation of memory, say in learning Latin and a modern language. Mathematics to some of the higher departments. German and English literature. Then any studies that are congenial in natural science, pursued thoroughly. Any studies that cultivate memory and those that cultivate reasoning. The best all-round scholar of my time was a man who as a young boy learned a thousand verses of scripture for a prize and attributed his subsequent success to his training when a boy.

(3) Well grounded in the three "R's," physics, chemistry, civil government, literature, bookkeeping, methods of business.

Chemistry, anatomy, physiology might be put in the academical course and count for A. B. degree.

A course for A. B. and M. D. should only require five or six years.

Samuel A. Fisk, Brimfield, Mass.

(1) Hearty and active sympathy with one's fellows; they are to be regarded as human beings and not simply as cases for research.

(2) Truth, a correct fitting of theory to facts.

(3) Nature, not books.

George G. Groff, Professor, Bucknell University, Lewisburg, Pa.

(1)(a) He should be honest and moral, with a good mind on acquiring knowledge, and with sound judgment.

(b) These are better developed in the home, than in the school, though the school can aid.

(c) I know nothing to equal the old classical studies, but admit that under good teaching, all studies aid in the directions desired.

(2) He should have learned how to study from books, and to observe and interpret for motive before he begins his medical studies. He should have learned how to read.

(3) He should have that general training which is given say to and through the Sophomore course in college.

He should have had one year in chemistry, and the elements of botany, zoology, geology.

Yes, the acquisition of these will train character and mind.

Edward B. Heckel, Associate Professor, Western Penna. Medical College, Pittsburg, Pa.

(1) The neophyte in medicine should possess the highest development of what we call character and which Calderwood defines "as an established order of disposition which by development gradually acquires strength in accordance with the rules of life most commonly acted upon. Its measure is found in the prevailing dispositions, the standard of measurement in the moral law. Character is, therefore, good or bad, according as the reigning dispositions are in harmony with conscience, or antagonistic to its authority. In accordance with the law of development, character may assume a selfish or benevolent an upright or a dishonest type. The goodness temporarily manifested in a simple action, may find an abiding representation in the disposition which prompts the moral agent readily to reproduce such forms of action when opportunity offers. The morally right disposition by development gains strength, and acquires an aptness to exert its influence which places it more at the command of the person."

(2) The study of mathematics, physics and chemistry for accuracy, and attention to details, the study of botany, biology, geology, etc., for developing the powers of observation, the study of Greek and Latin for memory, and a proper appreciation of English, the study of French and German to give access to a vast field of important literature.

(3) The medical student should be in possession of mathematics up to and including calculus; physics, chemistry, botany, biology and geology; two years of Greek; three years of Latin; and two years of French and German; a thorough course in English; a thorough knowledge of U. S. history and a general knowledge of the history of the world; logic and psychology; and a course in free-hand drawing.

The acquisition of these facts will certainly train and develop the mind; and if the environments are good and the teachers possess a strong personality, they certainly will have a great influence upon the character of the student.

Henry B. Hemenway, Evanston, Ill.

(1) The neophyte should have a character marked by integrity and breadth, and should be methodical and analytical, and an impartial seeker after knowledge.

Integrity, while it may be fostered by training, is more the result of personal influence than of subject studied.

A diversity of subjects tends to give a breadth of view. For analysis and teaching classification I know of nothing equal to the Greek verb. Latin puts one in touch with people remote in mind and differing in speech. Laboratory studies develop the power of observation.

French and German make one more cosmopolitan and open the door to valuable records of investigations.

(2) Methodical, patient, careful, observing.

(3)(a) Knowledge of English, if he is to study in an English-speaking community. The structure of the Latin language. (Desirable also French, German, Spanish, etc.) Enough mathematics to comprehend physics. Physics, especially electricity. Chemistry and botany, biology and zoology, the more the better.

(b) Yes. When a student once went to the noted Agassiz to study the lepidoptera he was first given a haddock, and permitted to study nothing else for weeks. One cannot so well understand the human body until he knows the general facts of zoology.

The narrow man. The specialist whose studies have always tendered to specialization, may be a valuable man, but he is always dangerous and must be always held in check by those with broader view.

E. P. Hershey, Denver, Colorado.

(1)(a) Good moral character. Mind not too stunted with religion. Early religious training, sufficient to train the mind upon the subject of man's obligations to his fellow-beings.

(b) To an extent subject to the student's receptive powers.

(c) Sufficient classics to mould the esthetic nature. All the scientific instruction possible that he may learn to depend upon facts.

(2) Association with learned men, study of inventions, particularly those facts which led up to them. Observation of nature's laws. The young man in a cyclone who could say, that the cause was a natural one, coming from differences in barometric pressure, while everybody else considers it a visitation from the Lord, has the right kind of mind.

(3) Thorough training of the mind by means of a severe mathematical course of studies. The study of logic. He should be a thinker.

This is yet a mooted question some minds cannot be learned to be logical. They may be improved but the young man who has neither a receptive mind, nor a retentive memory better let scientific work alone.

Arthur E. Hertzler, Professor, Medical College, Kansas City, Mo.

(1) Honesty, sympathy and industry.

If the "anlage" exists they can be developed to an almost unlimited extent, being limited only by the natural capacity of the student and the personality of the instructors.

The class of studies is unimportant so long as the studies are pursued in an honest and sympathetic manner with due diligence.

(2) Some years' experience in systematic thinking. It matters little if this be in the dissection of frogs or in the analysis of a classic. The best discipline can be obtained only by following out several lines of study. I believe in starting the student early in some research so that when he reaches his medical teacher he has already tried to think.

(3) Aside from a good knowledge of the English language a reading knowledge of both German and French, a good knowledge of physics and chemistry and several years' training in a biological laboratory where methods are studied.

A broad basis of evolution learned in the biologic work ought to develop character, and any course which does not develop the mind is lacking in the very essential. The mere acquisition of facts would not warrant the expenditure of the time.

Charles W. Hitchcock, Detroit, Michigan.

(1) Primarily the character of the Christian gentlemen, impressed with high ideals, a high estimate of the privileges of service; a character which is above the flippant and the frivolous and which sees things large, getting away from the petty and the trivial. I think such a character may be aided in its development by instructors of high moral tone, lofty ideals, and deep earnestness in their purpose in life. A liberal education, a generous reading, a good home training, and wholesome association seem to me more helpful than any stated studies.

(2) I am old-fashioned enough to believe that the "classical course" of former days, with perhaps a more liberal adnexum of the natural sciences and the modern languages, brings a young man most fitly up to his medical course.

(3) A working knowledge of Greek and Latin, a working knowledge of French and German, a good course in physics, elementary chemistry, some botany, physical geography, biology, psychology.

In short a good classical course supplemented as hereinbefore suggested.

The acquisition of this knowledge will prove good mental discipline and if reading and association be wisely advised, character, too, will benefit.

Lawrence E. Holmes, Biltmore, Asheville, N. C.

(1) To begin with, above all things, he must be a gentleman, in the highest sense of the word. Unfortunately, the qualifications of a gentleman, are less developed by college training, than are mental characteristics, but come to a

very large extent from heredity and very early training and associations. A fine sense of honor is above all things necessary, and a full realization of the responsibilities and almost sacredness of his trust. It seems to me that no studies can have a better influence in this direction, than that of history in its broadest sense, associated, of course, with literature and art, for the three ought to be hand in hand.

(2) At least that training which is required to obtain an academic degree in a college of high standing. The study of sciences and languages, ancient and modern, is most desirable, as also, an elementary knowledge, at least, of psychology.

(3) He certainly ought to have at least an elementary knowledge of Greek, and a more intimate acquaintance with Latin; and French and German are partly to be desired. A good knowledge of physics, especially electricity, chemistry, and the more of zoology, botany and geology the better. Undoubtedly the acquisition of such facts cannot fail to broaden the mind, make one take a more cosmopolitan view of life, and if there is a good foundation in character on which to build, a great development of that character must be the result.

George G. Hopkins, Brooklyn, N. Y.

(1) The old classical requirements in our academic colleges should be a prerequisite to entrance upon the study of medicine.

The present plan of electives in academic studies does not give that drill to the mind that best fits men for a professional life.

(2) Latin, Greek and higher mathematics.

(3) Culture in every direction will make the best and strongest mind on which to build the medical superstructure.

William A. Howe, Phelps, N. Y.

(1) An honest character is the first prerequisite, to the neophyte in medicine, as well as in any other vocation. The student must be ever vigilant that his character should be above reproach.

A good character, a liberal education, and a determination to succeed, will insure to the neophyte, the brightest prospects for the future.

Starting with a good character, enables the student to far easier maintain it. It is not that education makes the man, but the man makes the education what it proves to be.

(2) The student should first be graduated from the public high school, then to be either an A. B. or B. S. from not too large an institution. It is not so much what a man studies as it is that he learns how to study, how to concentrate his mental energies on the subject under consideration. Little which he acquires before entering medical college, will, *per se*, be of so much value to the student in his professional work. It is more the mental dis-

cipline which he obtains that will enable him to utilize to the best advantage the opportunities of his medical training.

(3) *First*, the man should be positive in his conviction that he will find the work, congenial to his taste.

Second, he must guard assiduously his physical powers, that they may not fall below his mental strength.

Third, having acquired the arts of intelligent mental worth, he must seek all the practical education within his reach.

Fourth, the sooner he combines good common sense with his intellectual work the sooner will he be a potent factor in his profession.

Yes.

Guy L. Humer, Baltimore, Md.

(1) The neophyte in medicine should be such not from accident but from a well-formed taste and desire for the profession. I can best answer all your questions by giving my idea of a course which should fit a man physically, mentally, and morally for the high calling of a physician. The child should begin in the kindergarten in order to train the hand and the eye with the brain. I am a believer in our public school system as opposed to private schools. The pupil may here obtain some unessentials, but he is less likely to get short cuts for those things he may happen to like and therefore consider essential. In the public school I would continue the training of the hand and eye and teach practical things by having the boy take the manual training course. I would add to this practical training by placing him on a farm during the long summer vacations. Here he would get close to nature, gain a broad sympathy for the "common people," and above all lay a good physical foundation to serve him in after life.

During his first two years at college I would advise history, political science, philosophy, German and French, and the higher mathematics including solid geometry, trigonometry, calculus, and physics.

During his last two years he should devote himself to the studies which directly lay a foundation for medicine, physiology, biology, zoology, comparative anatomy (including dissection), chemistry, physics, including laboratory work for one year, and continue German and French.

By this time the young man should know whether he has a real taste for the sciences and should he prefer any other career he should not be encouraged to enter a medical school.

W. W. Keen, Professor, Jefferson Medical College, Philadelphia, Pa.

(1)(a) Uprightness, stability, a Christian character is most desirable.

(b) Much by insistence of their necessity by the teacher and it is essential that he should be a living exponent of his views.

(c) History well interpreted, biography, the best romances, the best poetry, psychology.

(2) Mathematics, logic, rhetoric, including a good command of English. One or more foreign languages. If only one that should be German, if two German and Latin, if three German, Latin and Greek, French is next in order.

(3) Elementary physics especially.

The requirements of the Medical Council of Pennsylvania is a very fair minimum requirement.

See pp. 14 and 15 of the Jefferson Medical College announcement.

D. W. Kinsman, Columbus, Ohio.

(I do not know as I have a clear apprehension of what you wanted.)

(1) Altruistic, optimistic, truthful, judicial, receptive not credulous.

Wholly the result of education.

Fiction: "Rab and His Friends"; "The Bonny Briar Bush."

A thorough study of the biographies of great men of science rather than those of "Captains of Industry." All natural sciences, *i. e.*, botany, zoology, etc., study of beauty and form.

(2) Development which comes from linguistics, psychology, drawing, modeling in clay or wax. These would be better than mathematics for a boy who is being trained for medicine.

Of course time and the method of instruction are influential factors.

(3) The easy use of three languages. A knowledge of physics, embracing electricity, optics, acoustics, chemistry. And above all a good use of the English language by speech or pen.

Chas. H. Knight, Professor, University Medical College, New York, N. Y.

(1) "Schooling" less important than good home influences, healthy environment, proper companionship in early life in character-forming.

As preliminary to medical course a college education following a thorough preparatory training is most desirable but not essential. Some of our best medical students have had only a meagre high school education. Doubtless the necessary "facts" may be thus acquired, yet as a general rule require of the candidate for the medical school the A. B. degree, or its equivalent, especially in the classics, in modern languages, and in the sciences, mathematics and history.

(2) Not answered.

(3) Not answered.

S. A. Knopf, New York, N. Y.

(1) The character of the neophyte in medicine should be firm, energetic, yet gentle and kind. These qualities can be developed by reading and studying the lives of great physicians and great men of other callings.

(2) The mind of the future medical man should be clear, free from all prejudices, willing to accept scientific facts and to suspend judgment in all

matters not yet proven. It should be a mind willing to investigate all things appertaining to medicine and the improvement of mankind.

(3) A classical education is always of advantage, but while the study of Greek and Latin will help to train the mind and be of use in medical terminology, the study of modern languages, physics, botany, zoology and biology are of equal importance.

Henry Leffmann, Professor, Woman's Medical College, Philadelphia, Pa.

(1) As to the first part of this question, I will say that I do not think that anything more than a commonplace can be expressed, namely sincerity of purpose, honesty and decency. A moderate degree of skepticism is advisable, in order that the student may not accept statements too readily. "Trust in the Lord, but keep your powder dry."

Training may do something. The study of the better class of histories will be of advantage. The ordinary school histories are worthless in this respect. Macaulay's Essays have seemed to me very valuable.

(2) I am not able to answer this question, as I do not understand its scope.

(3) A fairly good knowledge of physics, a preliminary instruction in the principles of chemistry, that is, the atomic theory, the simpler portions of modern physical chemistry, a knowledge of the meaning of chemical symbols and their use in writing formulas, with a knowledge of the principles of nomenclature of common inorganic bodies, but not necessarily any knowledge of descriptive chemistry. Some knowledge of some department of natural history (botany, I prefer) and mathematics as far as equations of the first degree, mensuration and the use of logarithms.

Andrew Stewart Lobinger, Los Angeles, Cal.

(1)(a) Unquestioned sincerity, conscience and integrity.

A love for medical study and work.

Freedom from the commercial and political spirit. An intelligent comprehension of the ethical and professional spirit.

A potential studious habit, not to be deflected by money-getting or an itching for shallow fame.

(b) In a clean and high-minded intellectual atmosphere, it can be very largely developed.

(c) Wholesome ethical studies.

(2) A sound classical course in a good college or university, with courses in modern languages, in ethics, history and biography.

A training which will give the young man a sense of proportion along with adequate discipline.

(3)(a) Such as would naturally be acquired by a classical course embellished by practical electives, as previously indicated.

(b) Certainly.

But one of the commonest fallacies is that a great quantity of heterogeneous "facts," uncorrelated, constitutes a "practical" academic training. An encyclopedic mind is not one of breadth nor discipline. It is a curiosity and rarely effective.

Edward E. Mayer, Associate Professor, Western Pennsylvania Medical College, Pittsburg.

(1) Character, I regard as independent of educational processes and can conceive of no class of studies which will form character. However, I regard studies in biology and social economics as most essential to a medical man and most adapted to give him a broad judgment and sound ideas.

Habit and environment in conjunction with heredity influences form character.

(2) A good college education.

(3)(a) Biologic sciences, social economics.

(b) No.

T. M. T. McKennan, Pittsburg, Pa.

(1) Common sense, unprejudiced, industrious, receptive.

College education.

Ordinary college studies, mixed course. Some languages and some scientific studies.

(2) The habit of study induced by application.

(3) Chemistry, physiology, physics, biology.

Enough religion to produce a proper psychologic influence, but not too much.

L. Harrison Mettler, Professor, Chicago Clinical School, Associate Professor, College of Medicine of University of Illinois, Chicago, Ill.

(1)(a) An honest man.

(b) Technical and classical studies do not make character. Studies of this class belong to the intellect, and morality is not essentially a matter of intellectual development. Morality (the basis of character) is more dependent upon the effective faculties. A man's feelings dominate in the sphere of morality. Studies such as the classical, may, through their influence upon the effective faculties, help to mold a character. Honor, love, patriotism, reverence, etc., may be fostered by the sentiments conveyed in classical studies but not in technical or scientific studies. But no studies classical or technical can originate sentiments of honor, etc., if the student's feelings are dormant naturally or incapable of being aroused to a right enthusiasm. As I have said, the feelings dominate most in the sphere of morality though

the intellect, like an inhibitory force, may control and guide. A man is good or bad because his feelings lead him that way, his likes and dislikes, his appetites, his enthusiasms, etc., and not because he has more or less intellectual ability. To use a homely illustration: The man is the ship; his morality depends upon the steam machinery that makes the ship go; his intellectuality merely guides it. Without the motive force the ship would be no ship, in the true sense of the word—have no character—in spite of its bulk and the perfection of its steering gear. Hence the way to inculcate morality, and to develop character is by fostering, through example, encouragement, etc., the love of the good for its own sake, the hatred of the bad for its own sake. The home and the associations in life are the schools for character.

(2) In my judgment, a combined classical and scientific discipline; the latter for its training in accurate observation and the former for its mental expansion. It seems to me, to use physiologic metaphor, technical studies cultivate the afferent abilities of the student, whereas the classical studies (humanities) cultivate the efferent abilities. The former show and train how to take in, *i. e.*, observe and appreciate the phenomena about him; the latter broaden his faculties in such a way as to enable him to reason, compare, interpret, and take large views in the explanation of these observed phenomena. Technical studies naturally tend to narrow one's mental horizon; on the other hand, the classical studies tend to expand it too much. This is because imagination is absolutely eliminated in fine technical studies; and it is almost predominant in the classical studies, *e. g.* The observations of the chemists *per se* in the laboratory belong to the purely technical work and do not or ought not to involve imagination at all; the elaboration of the atomic theory to collate and explain these chemic observations is along the lines of mental activity especially fostered by the classical curriculum, namely, the use of the imagination controlled by the intellect. The highest type of scientist, in my judgment is one who can observe accurately and at the same time form in his mind's eye (imagination) rational conceptions of the interrelationship of phenomena. A combined technical and classical course is therefore the desideratum for the making of an ideal scientific physician. If so, it would be the best preparation presumably for the prosecution of a medical course.

(3) All facts that bear upon medical studies and that can be learned in conjunction with a parallel course of classical studies. Anatomy, physiology, biology, psychology, elementary embryology, chemistry and all elementary studies involving normal and even non-medical phenomena, which nevertheless bear upon and lead into the purely medical studies like surgery, medicine, pathology, therapeutics, etc.

The study of facts, as I have attempted to briefly point out under question 1, does not form character. They may influence character, as a pedal on a pianoforte influences the sound of the notes, but is in no way directly or indirectly concerned with the making of those notes. A man is a murderer because for some special reason in his appetites, desires, etc., he wants to be.

He has the character of a criminal. He may know the laws perfectly in regard to criminality. The knowledge of that fact may modify the expression (like the pedal on the pianoforte) of his criminal tendency but it does not create or abolish that tendency toward crime in him. Character has nothing to do with a mere knowledge of facts. Character is a soul quality; it belongs to the affective side and not the intellectual side of a man.

Charles Lewis Mix, Professor, Northwestern University, Chicago, Ill.

(1)(a) Great common sense and sterling honesty.

(b) Common sense is largely inborn, and hard to establish if not present; it can be brought out, if latent, by the so-called liberal education. Sterling honesty should be taught in the ordinary college course by example.

(c) No particular class of studies can bring out these two traits of character.

(2)(a) Trained observation is the *sine qua non*.

(b) The ability to reason logically upon facts ascertained is almost as important. Hence a scientific course is imperative, since it teaches both (a) and (b) simultaneously. A good course in logic taken with scientific work is desirable.

(c) Modern languages are a necessity. French and German (and Italian also if possible) should be sufficiently mastered, to make the reading of the languages easy.

(3)(a) He should have taken a college course, in which physics, chemistry, biology, modern languages, and logic should appear prominently. The study of English should also be regarded as absolutely essential.

(b) Certainly such acquisition will affect both character and mind; and care should be taken that the facts acquired influence the student in the right direction.

Edward O. Otis, Professor, Tufts Medical College, Boston, Mass.

(1)(a) A character for truth, devotion to duty, accurate work, perseverance, equanimity, the possession of humor, cheerfulness, a profound religious faith.

(b) Latin, Greek, mathematics, normal training, natural history.

One's ancestors, home influence, nature.

(2) Whatever will train his mind to think accurately and the training for this will vary with different individuals—for some a thorough chemical course like that at Phillips Exeter Academy for example, or the Massachusetts Institute of Technology—some knowledge of history and philosophy I believe is also very valuable.

(3)(a) Such facts as these of chemistry, natural history, biology, etc.

(b) Yes. The study of nature trains the mind and enlarges the soul.

Walter B. Platt, Baltimore, Md.

(1) Industry, steadiness, conscientiousness in his work, love of truth, tactful-

ness, good temper, and love of his kind. These are best obtained by a good inheritance of these qualities, and a good home training. The courses of study preparatory to the study of medicine, at Yale and the Johns Hopkins, preceded by a course at our best preparatory schools, are very desirable.

(2) Mathematics as far as and including trigonometry teach and train one to close thinking. The so-called natural sciences, botany, zoology, biology, physics, chemistry, and mineralogy, are very necessary to teach observation. I believe these studies properly taught will give the student all the mental discipline he needs. Many need moral discipline outlined under the head of character quite as essential to their success.

(3) A first-rate training in English, then a good knowledge of Latin, German and French (reading). The best mental training as has been stated as necessary above, is given in the courses preparatory to the study of medicine at Yale and Johns Hopkins. The training and the facts here are about the same. Close association with high-minded persons will do more to develop a sound character than any amount of purely mental training. Apart from home training this is best given at some of our best preparatory schools, but to some extent at college or university.

F. M. Pottenger, Professor, University of Southern California, Los Angeles, Cal.

(1)(a) Good physique, outdoor life, outdoor work or (what is a poor substitute) gymnasium drill.

(b) Receptive and inquiring mind, with the faculty of observation will cultivate (memory less important than reasoning).

This can best be brought about, I believe, by making the first part of the college course more or less general, thus giving the individual a survey of the whole field of knowledge, then making the last year or last two years lead up to the professional work. I believe nature studies, such as botany, zoology, geology and physics, are especially adapted to train the medical mind.

(c) Every physician should foresee a good moral character to merit the confidence imposed in him. This is largely a matter of earlier training or personal influence.

(2)(a) One should have fixed habits of study.

(b) A general understanding of the field of knowledge, so as to be able to grasp the subject studies in its relation and correlation with other subjects.

(c) Observation well developed.

(3)(a) Good understanding of his own language.

(b) Sufficient knowledge of Greek and Latin to make the derivation of words intelligible. In this day progressive medical students should be able to read and speak more, particularly read, German and French.

(c) Sufficient drill in mathematics to train the reasoning power.

(d) A good understanding of scientific subjects generally.

A college course cannot educate a man. This is a process of a lifetime. It

can, however, and this is about the most that can be hoped for, form habits of study and give a general survey of the field of knowledge, so that the student is receptive and intelligent and able to read medicine in its broadest light.

G. A. Pudor, Portland, Maine.

(1) Medicine demands an honest man first of all, a moral man and lastly a studious man. The last may be inculcated by proper teachers, but hardly of any course of study.

(2) In my experience students of medicine lack two very essential requisites for successful doctors. They lack eyes and reasoning power. They see superficially and reason even less satisfactorily.

I should encourage the study of the languages, living and dead, to cultivate the mind especially in memory. Mathematics to increase the power of reasoning and the natural sciences, botany, and chemistry especially to train the eye to see and see properly.

(3) That medicine is the noblest of all professions. That it is the most difficult as regards the amount of knowledge necessary to be given a poor doctor. That with few exceptions it is the poorest paid of all professions and an exacting taskmaster if the man does his duty to himself as regards study, to his patients if he treats them honestly and conscientiously.

I think if these facts were properly brought before every intending student of medicine it might deter some from entering the profession, but I doubt if they can be of use in training the character or mind.

Arthur J. Puls, Milwaukee, Wis.

(1) Good morals, good disposition, good cheer and good health. By acquiring positive knowledge in any of the scientific fields, cheerfulness and a better disposition can be developed.

Good association at a college or university, by forming close friendship among the members of a fraternity or of a social club, develops the moral side of the student and builds up character.

A study of the liberal arts broadens the view of the student. The humanities make a better and broader scholar. An early study of the applied sciences leads to narrowness.

(2) The attainment of a bachelor's degree of arts or science is essential in order to grasp intelligently the various studies of the medical sciences. The medical field offers to the student and investigator so many lines aside from the practice of medicine that the allied sciences will at some time be of the greatest help to further his research work.

Examples of medical students who became renowned in other fields of science are numerous, Remsen (Johns Hopkins), Helmholtz and Virchow (Berlin), etc., etc.

(3) An understanding of the natural sciences, i. e., physics, chemistry,

botany, zoology; also the Greek and Latin, German and French languages; a study of ancient and modern history, philosophy and logic, train the mind and produce strong character.

If we were able to tell before hand who could be fitted for investigative and who for practical work, the latter would waste time at studies distasteful to him or unintelligible but might profit more by manual training and by similar work other than booklore.

The university of hard knocks will keep on turning out great men, because the opportunities offered to its graduates represent in most part the works and labors of educators.

Augustus Ravogli, Professor of Medical Department, Cincinnati University, Ohio.

(1) A young man who wants to enter in the study of medicine, must possess a firmness of character and a stability of views. Young men of changeable mind do not take interest in the study and they do not succeed.

The firmness of character and stability of views is developed in the young men mostly by a serious and well directed home education. The good example of the parents, the persuasion of the necessity of their success gives them firmness and stability of mind, which is the principal qualification for a neophyte in medicine.

The firmness of character produces in the man that confidence in himself and in his own resources, which makes the ideal physician.

Classic instruction is the preparation required to give this firmness of character.

Our aspirant for the medical college does not require too much body exercise; when the brain must work the muscles cannot work at the same time. He must be trained especially in those sciences which are mostly related to medicine.

The aspirant for a medical college must be energetic, industrious and studious. The energy will help him to overcome the difficulties and the objectionable part of the study, the industry will make him patient and steady in the laboratory work, and the studiousness will enrich and direct his mind in the difficult problems, which are constantly before the physician.

Another great and important condition for the aspirant to the study of medicine, must be a good health and a strong physical constitution.

(2) Logic, the science, which teaches the laws of the thought; under its laws the human intellect is developed and produced.

This directs the human mind to find the rules to be followed in the research of truth.

Logic is necessary as a pure science, and as an applied science, art of thinking. It analyzes the human intellect in its noble functions of the thought, establishes the language and the general laws for manifesting the thoughts, it examines the certainty and the general laws to obtain it, and gives the rules to obtain, appreciate and transmit the truth.

(3) It has to be present to the young man who enters the study of medicine, that the practice of medicine is not a business career but it is the noblest of all professions.

That the reward in money is not the only and ultimate motive of the efforts of the physician, but the ultimate motive is the benefit and the relief of the sufferings.

That the physician has to study all his life long, and has to sacrifice his time, his comfort, his pleasure to the benefit of suffering humanity.

Every branch of medical science has to be seriously studied in order to become a good learned practitioner.

H. L. Reddy, Montreal, Canada.

(1) *Mens sana in corpore sano*, application or determination, I believe that application can best be developed by small classes under a good teacher who will keep the attention of the student daily directed to the subject and make him work out the different problems by using every-day objects as companions and making him draw correct conclusions.

Experimental physics.

(2) I consider "grinds" daily instead of the ordinary didactic lectures the best. Explanations of each fact given in lectures and the student questioner and allowed to ask questions. Not the smallest matter to be considered too trivial to be explained by teacher and required from student.

(3) A B.A. degree from a first-class university.

Latin, Greek and experimental physics are the three most important subjects to my mind for medical students, especially the last named, for it touches life at every point. Given a man well founded in these three and a fair quantity of mathematics, he can be trained in almost any direction and degree in character and mind.

John B. Roberts, Philadelphia, Pa.

(1)(a) The faculty of observation, accuracy of thought and action, good judgment, and honesty.

(b) To almost any extent. Training and habit make it easy to see and do accurately, and in the same manner develop good judgment and honest methods.

(c) Biology, chemistry and mechanics, languages and literature, history, mathematics.

(2) The habit of concentration of thought and the ability to analyze and classify in the study of any branch of medicine, so that the memory may retain facts and the mind utilize them.

(3)(a) The facts of inorganic chemistry, and biology of the simpler forms.

(b) Yes.

W. G. Schauffler, formerly Professor in Medical Department, Syrian Protestant College, Beirut, Lakewood, N. J.

(1) Firm, well developed character, which can only be the result of careful, uninterrupted training in primary and secondary schools, where character-building is studied and the students watched and their individual characteristics developed. A classical training is to my mind essential.

(2) That given by a careful graded course of instruction in connection with other scholars. In other words classical or scientific primary schools and colleges.

I hold that the study of the classics and mathematics as well as English literature is absolutely essential for every medical student.

(3)(a) The main facts about the practice of medicine, its objects, its dangers and difficulties, and its chances for doing good in the world.

(b) Certainly.

I hold that apart from preliminary education no young man should enter on the study of medicine unless to him the practice of medicine seems the only profession worth entering.

T. H. Shastid, Harrisburg, Illinois.

(1) The neophyte in medicine should be a thorough gentleman. Also, if possible, a Christian.

Gentlemanliness and Christian character can both be taught most efficiently at home by the parents and the older children. When proper early influence have been lacking, much by way of supplying the resulting defects in character can be accomplished by the example of courteous, dignified, and Christian professors.

The refining influences of the best vernacular literature (as such literature is taught now in our leading universities) would go very far to supplement the example of the professors.

(2) An all-round one. Special attention, however, should be paid to practice work in English composition. There is no other study which quite so thoroughly pulls the kinks out of crooked lines of thought as does the study and practice of composition in one's own language.

Logic should also be studied very thoroughly, for obvious reasons. It is the science of sciences.

The quantity of work done by a student should never be a primary consideration. The chief object of the preliminary education should be to produce a calm, clear, smoothly running, accurate mental engine, not an engine clogged with oil and waste.

(3) A sufficiently large Latin and Greek vocabulary to enable the student to derive the vast majority of his medical terms with promptness and ease.

The facts of elementary botany, zoology, chemistry, physics, and mental science.

German and French should be understood thoroughly.

The acquisition of these facts may certainly be used to train the character and the mind, and a skilful teacher does so use them. The mere acquisition

of facts, however, may result in nothing better than a mere development of the memory. President Eliot's idea, I think, is the right one. The student should be obliged to *do something* with whatever he learns.

George Erety Shoemaker, Philadelphia, Pa.

(1) Moral stamina, honesty, sincerity and earnestness of purpose.

These are under influence of educators and education. Much influence by association as found in high-grade schools where liberal branches are taught. Ethics, logic, mental and moral philosophy.

(2) Learning how to study. How to observe and how to analyze facts, to weight the value of evidence.

(3) Students should already have knowledge of at least two languages beside his own with some conception of language development and word-building. His breadth of view should be increased by some knowledge of natural and applied sciences, and of the liberal arts. I believe in the preliminary college education for the medical student.

Frederick T. Simpson, Hartford, Conn.

(1) For the physician, the chief traits of character in my estimation are essential kindness, social inclination and instincts, high self-control, a tendency to reticence, quick wit, keen discernment, sound judgment and good memory. Schools with democratic tendencies, religious influences, athletic clubs, and a common social life foster many of these characteristics. History, languages, sociology, biology, psychology, ethics, are preliminary studies of value to stimulate their growth because dealing with the evolution and primary relations of human beings.

(2) The cultivation of observation, of comparison, of deduction and induction, of memory, of judgment of values, of exactness of all mental operations, of thoroughness of all investigations, of viewing and reviewing from all sides. For these purposes the natural sciences are in my judgment best adapted, physics, chemistry, botany, astronomy, geology.

(3) The student should have a general knowledge of the world which man inhabits. Above all of the living world of which he is an intimate part. He should have some ideas of the stages of man's development, of the languages, institutions, and laws which he has invented, of his material progress. He should know man's normal constitution physical, mental, moral. He should have acquired one or more languages besides his own. He should have some acquaintance with the business world and of affairs generally. It goes without saying that the knowledge of these facts trains both character and mind.

William T. Smith, Professor, Dartmouth Medical School, Hanover, N. H.

(1) Mental qualities, sincerity, candor, love of truth and reality, sound judgment.

Moral qualities, humility, courage, self-reliance, the desire to serve.

The mental qualities named are developed by scientific studies.

The moral qualities must be nourished from sources outside this curriculum.

(2)(a) Such training of the powers of observation as laboratory courses and a training of the reasoning powers by the study of logic aim to give.

(b) The ability to use books.

(3)(a) Knowledge of Latin, German and English.

(b) Knowledge of the elementary principles of physics, chemistry and biology.

(c) Some knowledge of philosophy, economics and sociology.

A well-rounded training of the mind can be obtained in the above studies. They are helpful in character-training but not sufficient.

G. D. Stahley, Professor, Pennsylvania College, Gettysburg, Pa.

(1) The best character possible, that of a Christian gentleman, whose manliness, mind and moral nature, have had equal nurture.

These qualities may be developed to a most useful and satisfactory degree, by proper educational processes.

A study of ethics will give him proper moral standards, motives and sentiments. The study of Theism will direct his mind Godward, and will centralize and spiritualize his thoughts against the disquieting suggestions of materialism and agnosticism which are sure to force themselves on his attention later in life.

(2) For genuine and productive mental discipline, the scientific courses of study, as usually formulated, have the advantage. These studies insist on personal observations, inductions, deductions, experiments, comparisons, etc. The innate faculties of the mind are awakened, stimulated, strengthened and developed. Power and proficiency are thus acquired to cope with medical questions, which, from their nature, must be approached through the scientific method.

(3) A medical student's preliminary training should include a good elementary knowledge of physics, chemistry and the biologic sciences. The structure, function, and fundamental laws of animal organisms, as well as the chemical and physical forces which they illustrate—the knowledge of which has come to him through practical laboratory work—will enable him to pursue his medical studies with real advantage.

The acquisition of these facts certainly do train the mind, and to a thoughtful student, the unity and nice adjustments he sees in nature, cannot help but foster a serious and well-poised character.

W. Blair Stewart, Atlantic City, N. J.

(1) A Christian man, honest, frank, upright, not afraid of work, and one whose integrity cannot be questioned—the ideal. Never give place to the

trifler, the viciously inclined, the loafer or the man addicted to the use of alcoholics or drugs, or the man of mental and physical hereditary tendencies.

Educational processes will develop the character of every man if properly applied and the surrounding influences are correct. Education never makes criminals unless the criminality is innate.

I should say study of all kinds but particularly the studies of English language in its purity with literature at the head; then according to the inclinations of the individual whether classically or scientifically inclined. A man's character is moulded by his environment, make that good and, unless a pervert, you obtain good results.

(2) Not answered.

(3) Not answered.

B. H. Stone, Burlington, Vt.

(1) He should be honest and capable of weighing facts and giving to each its proper value—concentration.

I am a firm believer in the value as a mind-trainer of the study of the classics and mathematics.

(2) The studies which require concentration. I believe in a broad academic training. Specialization should not be begun in an academic course.

(3) The facts which are requisite for graduation from the broadest academic courses. I don't see how the acquisition of these facts can fail to aid in the cultivation of habits of character and thought which are desirable.

Francis H. Stuart, Brooklyn, N. Y.

(1)(a) Positive interest in scientific studies.

(b) Specific interest in medicine.

(c) Pronounced desire to be a physician for the good one can do for the sick.

(d) A high moral character.

(e) Good breeding.

(f) A spirit of emulation of the best examples.

There must be a foundation of mind and character by birth and home-training; but these can be developed by educational opportunities.

The particular elementary studies are of less importance than the teachers and the spirit of the school.

(2) The largest most liberal culture possible. "Culture" studies first, then studies "preliminary" to subjects of the medical course.

(3) Familiarity with modern scientific methods as acquired by work on scientific studies in laboratory or field work, direct control with the material studied as well as use of text-books and lectures.

The acquisition of these facts will train both character and mind in proportion as the pupil comes in personal contact with the subjects under the leadership of an inspiring teacher.

Gardner T. Swartz, Secretary of State Board of Health, Providence, R. I.

(1)(a) Earnestness of purpose, interest in the subject, distinct from the sensational, social refinement, honest and liking for his fellow-man.

(b) The routine of a three years' course in the college training.

(c) English first, languages second, physics, chemistry, biology (general science).

(2) Contact with varied dispositions and characters to be derived in an A.B. course in a large college. Training which shall permit the mind to grasp detail without effort, and the power to cover large amounts of study without pressure.

A three years' college course is not essential for the development of an advanced profession. The admittance of the high school graduate may develop a man here and there who is a success by mere force of individuality, how much more valuable would he be to the public, the profession and himself if he had the advantage of the college training—morally, physically and mentally.

(3) Answered in one and two.

John VanDuyn, Professor, Syracuse University, Syracuse, N. Y.

(1) Honesty, industry and absolute devotion to the truth. These cannot be developed from without but must be striven for by a conscience within. They are best promoted in the character, by close laboratory study of science.

(2) That acquired in the A.B. course of nowadays, in the best colleges and universities.

(3) Few facts well and broadly learned in the humanities and science, leading to thoroughness and exactness.

R. L. Wilbur, Stanford University, Cal.

(1) The beginner in medicine should be morally and physically sound. He should have shown already characteristics that indicate his ability to be a leader in the community where he is to live. More attention should be paid to the moral character of all applicants for medical education, if we are to make the medical profession all that it should be in the community. Only strong, sound men are safe in the medical profession to-day.

Proper education can do much to develop lasting ideals and to inculcate a certain "*Esprit de corps*" in a medical student. Proper teachers rather than certain studies will do most to develop character.

(2) He should have the ability to think, to reason, to select and discard information. Any series of studies, no matter whether they apply directly to medicine or not, that has taught him these things and to work for himself will do, but the mental discipline of proper and scientific work, combined with a study of languages and literature, is more efficient. This mental discipline should continue up to the early twenties at least so that medical work is not

begun until some maturity is reached. Mathematics and Greek or Latin are no better for mental discipline than physics, chemistry or physiology and German or French, and are much less to the point from the standpoint of the study of medicine.

(3) He should have the equivalent of an A.B. or B.S. degree and should have studied English literature and composition, political economy and history, algebra and geometry, French and German, physics, chemistry, physiology, general biology. (University courses on all of above subjects.)

Yes, the acquisition of these facts with the help of proper teachers can do much to train the mind as well as to develop and strengthen character.

Reynold Webb Wilcox, Professor, Post-Graduate Medical School and Hospital, New York, N. Y.

(1) Good moral character. This cannot be developed in the average American University. It may be in the small (typical of 1800-1850) American colleges. It should be in all secondary schools. Usual course for B. A. based previously in Latin, Greek and mathematics.

(2) Answered in last paragraph. A student of average ability can take his B.A. at 22 and have done enough practical work in botany, mineralogy, chemistry, physiology and physics to undertake pure medical studies.

(3) Answered in last paragraph.

No. Experience of two centuries show superiority of English university training as foundation for brilliant scientific work.

Elbert Wing, Los Angeles, Cal.

(1) (a) Energy, concentration, application, persistence.

(b) All may be much influenced by the teachers, and hence really by educational processes.

(c) Have not great confidence in my own opinion as to this point, believing that the teacher is a more important factor—*ceteris paribus*—than the study chosen, but would try and have my own boy trained in Greek, Latin and the sciences and modern languages. There is plenty of time for all of them.

(2) That which will enable him to appreciate that he should do his best in everything he undertakes, do it as quickly as possible and be systematic.

(3) Fifteen years' experience as a medical teacher, from demonstrative to clinical and didactic lectures, convinces me that no hard and fast lines can be drawn here.

Many of the best students were not "thoroughly prepared."

The practice of medicine is a practical affair, and success in it depends upon individual qualities and not upon scholastic training.

The general culture of individual physicians and hence of the medical profession generally, must depend directly upon birth, education and associations. Much sentimental and fallacious reasoning is indulged in along these lines.

In my opinion it is a gross error to try to make experts in anatomy, physiology and chemistry or in practical departments of undergraduates. The colleges teach too many things, and teach too few things thoroughly.

J. H. Woodward, New York, N. Y.

(1)(a) Love of truth, confidence in the deductions of unbiased reason and humility.

(b) To any extent comfortable with the intellectual fibre of the individual.

(c) Studies in mathematics, and the physical sciences, and history.

(2) Observation, memory, and reason must be special objects of discipline in every curriculum preliminary to a medical course.

(3) A knowledge, much more thorough than that usually obtainable in colleges or universities in the United States, of English, French and German. A fair amount of careful instruction in Latin is an essential.

The facts of physical science and history and political science should be inculcated so that they be remembered and comprehended.

The acquisition of these things should, of necessity, train both the character and the mind in the manner desired.

C. Miscellaneous.

Ancil Martin, Secretary of Board of Medical Examiners, Phoenix, Arizona.

(1) Moral and studious upon home and school environment and influences. General public school work through standard high school.

(2) At least public school training and through high school, and collegiate training if possible.

(3)(a) At least those of a standard high school course of study.

(b) Yes.

Martin E. Miles, Professor of Anatomy, Lecturer in Neurology, Medical Department, State University of Colorado, Boulder, Colo.

(1)(a) One with a scientific type of mind combined with tact and culture.

(b) Can be developed if inherent qualities are there to a great extent, but they cannot be produced by education.

Science combined with the humanities.

(2) The discipline brought about by a scientific and culture training.

(3) Elementary facts of chemistry, physiology, physics, biology.

Yes.

DISCUSSION.

William A. Lacy, Professor of Zoology, Northwestern University, Evanston, Ill.:

I feel disposed to emphasize one thought rather than to discuss the report as a whole. I was greatly pleased with Dr. Hawley's broad presentation of

the subject. The report gives prominence to the advantages of an extended classical training, as a preparation for the study of medicine, and, while I do not take exceptions to this feature of it, it seems to me worth while to look at the question from another standpoint and to indicate certain particular subjects that are especially advantageous to men preparing for the study of medicine, subjects which ought not to be omitted even in favor of the best classical training. I should like to have all students who intend to go into medicine advised to include in their college studies courses in general biology, comparative anatomy and chemistry, and to see to it that devotion to other lines of instruction does not crowd these out.

When one visits a medical school at the present time, he is almost sure to be impressed with the great crowding in the curriculum. It is necessary to condense into the limits of four years the basic preparation in anatomy, physiology, histology, embryology, chemistry, etc., with all the professional training which is built upon this basis. As a result, comparative anatomy, histology, embryology and chemistry are not studied as pure sciences—there is no time for perspective—but the student is usually taught only those particular facts which will be of practical use in the practice of medicine. Thus, the finer parts of these grand sciences are lost, and have no permanent place in his generic training as a physician.

I should like to have intending medical students told by their advisers that these subjects are of immense value to them as a preparation to medicine, and the fact pointed out that they can get work of this kind in all our best colleges and universities with more perspective, where there is time to treat them in a more symmetrical manner. This is to my mind such an important feature in the proper training of a physician, that I should like to see the pursuit of these subjects advised as of primary importance, even if it should result in greatly limiting their work in the classics.

The subjects can also be turned to direct advantage by the student in securing an economy of time in getting his degree both in arts and in medicine. There should be no hesitation on the part of medical schools in accepting for direct credit the work in chemistry, comparative anatomy, histology and embryology done in the well-equipped laboratories of our best universities. In Michigan, a six-year course is arranged, in which students by doing work in the subjects indicated can take both degrees in six years. Personally, I think this is one year too little. But notwithstanding the provisions in the Minnesota law, I think we should come back to combined courses in the college and medical schools, and that we should advise students who pursue a premedical course in a college or university to take a liberal amount of chemistry, comparative anatomy, histology, and embryology in the college laboratories.

Dr. Leartus Connor, of Detroit.

Why should the student pursue any college course? Why may he no

pass directly from the primary grade, to technical study, to learn his business? As a fact most have chosen this course. Judged by financial results or trade reputation, it is questionable whether the need of a college training can be demonstrated.

Many doctors unable either to write or to speak English correctly have a larger following than the college-bred men of their locality.

But a college course gives an exceptionable chance for the individual to learn his own capabilities; to ascertain whether he loves the study of those sciences which form the framework of medicine; to take a broader outlook of living beings past or present; to study the efforts by which men gain success or failure; to learn the art of thinking and logical reasoning; to acquire a self-control of all his faculties under most unexpected conditions; to have fellow students rub off the sharp corners of his earlier years; to learn from his teachers and fellow students much useful knowledge, never written in books, or expressed in language.

A college training sorts men, so that fewer choose the wrong calling.

The number of misfits in actual life is shockingly large. Much of the obloquy from which the medical profession suffers, arises from those within its ranks.

A proper college training will give the student an increase of physical vim and mental vigor, so greatly needed to successfully endure the days and nights of anxious thinking in critical cases.

The intelligent practice of medicine exacts a large use of the imagination as in picturing beforehand all the possibilities of a proposed surgical operation, or the changes to be effected by a dose of medicine—to cultivate such an imagination is a part of a college training.

A college training furnishes a critical test of character. A boy that emerges from college clean in body, mind and heart, may be trusted during the rest of his life. Should he fall by the wayside, it were better that the medical profession was saved from his polluting influence.

As a mere trade the practice of medicine does not demand a college training, but as a profession leading in the unselfish service of the unfortunate, a college training furnishes an indispensable part in the equipment of the highest type of physician.

Dr. Carl H. Von Klein, of Chicago:

The report of the committee is well considered and well expressed. There is matter in it for a week's discussion.

If you wish to be a good physician and practise medicine conscientiously, you must give up the expectation of wealth. Good fortune may bring you the means of independence, a happy chance may throw riches in your lap, but you must leave it to chance. You cannot conscientiously study medicine and spend any strength in money-getting. The two interests will too often

conflict. I never made any money out of medicine. I have given up the practice, but I have devoted my life to its study.

There is one point I desire to make in reference to the medical student. Many young men fail in their examinations and are obliged to study another year. Occasionally you come across a young man who is an earnest student, but slow in comprehension. He fails in his examination, and because of his failure he quits. The profession is better off without him. If, on the contrary, he is not disheartened, but continues his study, we must encourage him, because he has the stuff of a student, and will master his subject. He will pass the next time, for his purpose is fixed, and he will honor the profession. He shows two qualities fundamental to success in medicine—the patience of the scholar and the courage of the practical man. Some of the greatest, most successful men in the world failed in their first examinations. There is the iron chancellor, Bismarck. He continued his studies, passed the next time, and became the greatest statesman the world has ever known.

Again, if, while he is in college, a student thinks of making life easy for himself, he is no good. I have known men who went through a course of medicine without a place to sleep. They studied in a garret. But such are the men who make good physicians.

A good physician must have a thorough education. I have always believed in higher education, and only in the highest grade of education. This report outlines an excellent plan of study, and I thank the committee for what it has done.

Harry B. Ward, Dean of the Medical Department, University of Nebraska :

I want to call attention to one feature in the most interesting report of the committee which may possibly need a little further discussion. Probably the committee has thought of this, and yet it is true, that one engaged in teaching has his attention directed towards a phase of the subject that does not occur to another man. The difficulty is of this character. Two students apply for entrance to the Johns Hopkins University, one from the Southern States and the other from New England; both possess high school certificates and college diplomas; both have A. B. degrees.

Now, the average southern high school has a course extending over three years; the average southern college course extends over three years. In other words, the man who came from the South has had six years of training beyond the time he left the grammar school; he is six years in advance of our common school education. The man from New England is, in all probability, the graduate of a four-year high school, for that is the only kind recognized there. If he is a graduate of a New England college, he has had also four years of college work. In other words, he is just eight years removed from the common school education.

Those two men do not stand educationally on the same basis. Even

supposing they have the equivalent in quality, it cannot be in quantity more than as six to eight years. The man who comes from the South with equal credentials, does not stand, therefore, truly on the plane with the man who comes from New England.

I bring this before you to show that under the extremely heterogeneous character of our educational system to-day, a name means nothing—there must be some other form of a test applied; there must be some other measure of preparation.

Again, I presume most of the men here who have not followed carefully the development of modern college education, are not aware of the extent of the elective systems that have been instituted. In olden days the college course meant more or less of the same training—not only four years, but four years applied along certain definite lines, with some mathematics, with some history, etc., but the modern college has separated far from that, with widely divergent courses that in many or all cases, lead to the same degrees.

I have noticed one other thing in my contact with college men and my work in teaching which is rather remarkable. When a student comes to a college officer seeking guidance and says that he intends to make theology his calling, the officer will say: "you should devote yourself to Greek and Latin, philosophy, sociology, etc., you should take the things which lead up to the subject with which you are to do in later life." If a man comes who is planning to go into law, the suggestion is made to follow economics and history; but again and again I have heard repeated to the student who is to study medicine, that he must go into broader fields to get an education, that he must avoid subjects which are related to his future work and take up only "culture studies." I am not here to discuss the classical education at all, and this is not said with any idea of decrying the classical training which I myself received; but the point I want to make is, there should be some recognized course of study leading towards the study of medicine as there is with reference to theology, or law, or any other vocation. Such a preliminary course is not recognized because it does not stand clearly in the mind of the average college teacher that medicine has certain fundamental subjects. Medicine appears as something that can be taught one man as well as any other and not as being built on a definite foundation. Professor Locy has emphasized this feature. But I want to lay further stress upon the point that in chemistry and biology there is the basis of the study of medicine, as subjects suited particularly to develop the mind of the student along the required lines and to give him the perspective for successful work in medicine.

James G. Needham, Professor of Biology, Lake Forest College,
Lake Forest, Ill.:

I want to say just a word about the committee's report, commending it for having drawn the line between the professional and the college work in the right place. Let the colleges teach the general science courses; let the medical

schools teach the special applications of these sciences to the human subject. General embryology and comparative anatomy belong, for example, more properly to college courses, human embryology and human anatomy, more properly, to those of medical schools. The pressure for time in the medical course is already very great, and it is destined to increase as new discoveries make necessary the further addition of courses. The relief of this pressure will be best found in lopping off at the bottom those courses which belong to preparation. The colleges will assist if they provide all the general science courses necessary, and then not only permit, but also recommend, the election of all such courses by premedical students. I cannot resist the temptation to say (as an outsider) that I have felt myself to-day to be in the midst of a meeting of educators. I feel sure that whether you have in attendance "a handful," as has been said, or a houseful, meetings like this cannot but be of great influence upon the profession and upon the country at large.

Burton D. Myers, Professor of Anatomy, Indiana University, Bloomington, Ind.:

I believe that Professor Ward was just getting to the point that I wish to make.

We have discussed the matter of preliminary requirements and what the effect of that education ought to be, but we have not gotten at anything specific as to how the desired result is to be attained.

For the last three years I have been interested in the organization of the medical department of Indiana University and we feel that our plan of organization represents the consensus of opinion of men eminent in medical education.

In organizing the Indiana University School of Medicine it was the belief of those interested that there was no reason for organizing anywhere another school of the old type, that the organization should be such as to be recognized as a distinct advance in medical education. It was recognized that the matter of entrance requirements was very important and our faculty and trustees were ready to require four years of collegiate work for entrance, if they could be convinced that was the most desirable thing to do.

When it was considered that in Germany, where medical education has long been well organized, an entrance requirement equivalent to the completion of the Sophomore year in an American college is in force, and that instead of putting an extra year in the preliminary work an extra year is added at the end of the course in the way of compulsory hospital service, it was felt that this was a standard well worthy the most careful consideration. Furthermore, it was believed that by specifying the work to be taken during the first two years of a college course, students could be given a better preparation for medicine than that secured by men who had taken four years of collegiate work elected at random.

So I want to tell you what we require. We hold first of all, that a man who

enters the practice of medicine should be able to use the English language; he ought to be able to do so in a clear and concise manner. So courses in English are required throughout the first year. Secondly, he ought to have a fair reading knowledge of German and French, and this is a part of the entrance requirement of the Indiana University School of Medicine. Furthermore, we require a year of physics preceded by a term of trigonometry; general chemistry, qualitative analysis, and organic chemistry; two terms of zoology and a term of botany, or a year of biology.

We feel that these two years bring out the character of the student. We believe that the work of the first two years of the medical course have just as much culture value as any in the university. Any student of our university who takes these two years of preliminary work, the Freshman and Sophomore years of the premedical course, and the two years of medical work given in the university, is graduated with the degree A. B. In short we have the six-year combination course and believe it the ideal for our time.

John T. Halsey, Professor of Economics, Lake Forest College, Lake Forest, Ill.:

In an essential way I am an outsider; I am only an economist, but I think I have never heard a better plea for college education than I have heard today in the report of Dr. Hawley. The testimony for the culture side of collegiate education has been fully presented. I do not think I can add anything to it. Admirable is the statement of President Hadley, who like myself is an outsider from the field of economics (if I may for one moment associate myself with that gentleman) that ability to *perceive*, to *think*, and to *do* are the three great things a college education stands for.

We are no longer holding to the old standards and saying that men can learn to think only by the study of formal logic, we are realizing that there is no more scientific method of reasoning than that of mathematics, and we are thus teaching men to observe carefully and to think accurately. But the end of all modern education is to lead up through observation and thought to the field of doing. I want to say that the college at Lake Forest is extending its teaching of science; we are giving a man any course he wants, and we are putting in more science alongside of logic, and under Professor Needham and his colleagues we give more and more of the natural sciences to those who want them.

What we want is men who can *do* things. A man attends college for four years and gets a breathing space before going out into the world. Is there any place on earth where you will find a better opportunity for the expression of cultivated character, such as a college education fosters, than in the presence of the dependent, the afflicted and the suffering. The medical man going into the house of distress needs in the highest degree that character, that conception of conduct which can minister to mind and spirit as well as to the body. The physician and the surgeon come face to face with the sanctities

of the home fully as much as the clergyman does; no profession is more sacred than theirs, no one enters more into the confidences of other lives, none calls for more tact and consideration and human sympathy, none has a diviner message to burdened and trembling humanity.

Dr. Daniel T. Nelson, of Chicago:

Perhaps you want to hear something of Rip Van Winkle, coming back after so long a time. I feel like he did when he came back, and still I am glad to second the report of the committee and wish to especially comment upon the liberal education of the physician, first. You cannot do it in four or six years. Give him a general smattering of all the fields of education and then begin to pour into him, not as I had it at Harvard in 1862-5, all of the fifteen lecture courses in one winter. If I chose to take them over each summer it would be the same; the same dose the next winter; and the same dose the third winter. Perhaps it will interest if not instruct you to know the result.

Oliver Wendell Holmes was my teacher in anatomy and physiology and, fortunately for me, I gained his acquaintance early in my first year. I took, or tried to take, all the lectures, clinics and hospital operations, for I had paid my \$100 and wanted my money's worth. I found I was better prepared, having had a college education, to take notes and get the whole thing than the unfortunate friends at my side who had not had such a training but, as you will readily see, the man who has this kind of training may get what I did. I soon got dizzy; I got a stomach trouble, got "bilious."

I went to Professor Holmes for a prescription. I called on him one morning while he was at work on his "Autocrat of the Breakfast Table." I told him I could not remember his lectures and could not make out his names of muscles, etc. He jumped up and I thought he was going to get a prescription to write for me. He said, "Nelson, you have got mental dyspepsia." I had only been at the medical school four or five months and had not struck that disease. He walked about and I walked about, and at last I said, "Doctor, what am I going to do about it?" He said, "that is just what I was thinking about." After a little, he said "you go home and stay until after the holidays; do not take a single book; go to work on the farm, and when you come back come and see me."

When I came back my dyspepsia was gone, and he said it was not a revelation to him, it was history.

Now he says do not try to take it all; take physiology and anatomy, take chemistry, take materia medica and therapeutics, and if you get time, see operations. Go to the dispensary and study sick people; get the faces of sick people and see how they look. In other words, it is simply association that is the great value of liberal education—the acquaintances you make. I would give all my college education has cost me in dollars and cents for the acquaintances I have made, and the ambitions engendered in my college life.

After a while most of you will claim that you get tired and you will want to do something else besides sawing at your profession; you will want to quit and take a vacation. Will you study botany; will you study biology; will you study comparative anatomy; will you hunt, fish, or will you educate yourself along some other line and improve the tired brain and improve your physique, as well as increase your education? A college training will aid you greatly then.

Dr. John M. Dodson, Medical Department, University of Chicago:

I am extremely sorry I was unable to hear the report of the committee, but judging from the discussions I have heard, I feel some interest and would like to say a few words, although I may repeat some points that have been brought out.

We are all interested, I am sure, in the preliminary culture course, but some instruction would require such a large amount of physics, chemistry and biology that other branches less directly related to the medical curriculum are likely to be crowded out. We need liberally educated men in the medical profession—men who know Latin, German and French, who, above all things, know English. A good college is the place to get such an education and at present practically the only place; the high school cannot give it, and it is not the business of the medical school to give it. When this has been attempted it has proved a failure.

Recently the Council of Education of the American Medical Association has presented a report outlining an "ideal" course in medicine to consist of one year of premedical work after the high school diploma is secured, four years in the medical college as now, and one year of practical work in an internship or an equivalent therefor. This preliminary year may be given by the medical school. The plan is a good one with that one exception, that it proposes that the medical school give this preparatory year.

I believe we shall more quickly secure the end we are seeking—that of securing a considerable amount of culture for every one who enters medicine if we do not ask too much, and I therefore believe the universal exaction of a bachelor's degree would be unwise at this time.

Professor James has said recently that, in his opinion, it has been really an advantage that many of the colleges and universities have been without large endowments because, depending upon the community for support, they have had to keep in touch with the community; they have had to adjust the college work to the needs and demands of the times.

One of the characteristics of our time is its strenuousness. Young men desire to get into life at the earliest moment possible, and in many cases they are held back too long. They ought to be in active life by the time they are 26 or 27, and the medical schools must recognize this.

There is another advantage in the combined courses now in operation in several institutions and which have received the high endorsement of Professor

Gaskell in the report of the Morely Commission, and that is, its adjustability to the individual student. It demands only two years of college work in which time one can secure a good deal of liberal culture. We are able to say to the man who is unable to enter college until 21 or 22, "this will be sufficient;" but to the young man who enters college at 17, "you ought to take the full four years of college work before taking up medicine."

It seems to me that the fundamental medical sciences, anatomy, embryology, physiology, etc., are in the fullest sense of the word, general sciences and branches of general culture and that work in them properly done may be allowed to count on the credit for a bachelor's degree without in the least measure lowering the standard of that degree.

Dr. Richard Olney Beard, Medical Department, University of Minnesota, Minneapolis:

I want to voice my appreciation, also, of the scholarly presentation of this subject which has been given by Dr. Hawley. I heard some one regret, this morning, the small number in attendance upon this meeting, but it is quality, not quantity, that counts in the work of such a body and it has never been my pleasure to listen to the discussion of so many purely educational questions in a gathering of this kind.

We all appreciate the value of the definition cited by Dr. Hawley, as suggested by President Hadley, of the results of education. But it is more essential to our present purpose to classify, or to attempt to classify, the successive steps in the process of education. To this end, we may define the process of education, in the primary and secondary schools, as the training of the mind in the gymnastics of thinking. And in this connection I would suggest that the revision of our courses of instruction might well extend backward into these schools. We might profitably return to the fashion of our English forefathers, whose sturdy educational habits I had fortunate occasion to profit by, and push the Latin, the French or German, the algebra and the plane geometry back into the earlier years. As mental gymnastic exercises they can hardly be excelled and, if they contribute to an earlier cultural process, so much the better.

Secondly, we may define the business of education, in the collegiate courses, as a training of the mind in the principles and practice of mental selection, in the comparison of facts and phenomena to the cultivation of mental judgment—the what to think in distinction to the how to think.

Similarly, we may define the part of the professional schools as the training of the mind in the adaptations of thought to use.

No fixed bounds mark these several phases of education, however. They interlock and overlap. In the teaching of medical men and women, which is the particular thing with which we are concerned to-day, we need to bear in mind their inter-relationship. In the making of the physician, we need primarily good material; secondly, the good molding of that material; and,

thirdly, the efficient utilization of that material. But we must not forget that which in the development of the combined collegiate course we have insisted upon, that the sciences in medicine have, in themselves, a cultural value and may be permitted to bear a part in the molding of the student mind, as well as in the fundamental work of putting its gathered stores into practical use. By the combined six years' course, in the University of Minnesota, we shorten the time required in the attainment of the baccalaureate and medical degrees, but we put a premium upon the better academic training of the medical student. We heighten the inducement by making the work of the first two years of the course essentially premedical. We include enough of the higher mathematics to serve as the basis of physics; of physics to serve as an introduction to physiology and surgery; we include botany as an aid to materia medica; general and organic chemistry as a preparation for the strictly medical features of chemical science; zoology and comparative anatomy as a preface to human anatomy and histology; English, German and French because they serve as the principal vehicles of modern medical literature. At the close of the first two years, the course admits to the strictly medical sciences, permitting them to stand as a cultural contribution to the academic and a foundational contribution to the medical degree. The fifth and sixth years are devoted to the purely clinical branches.

A word, in conclusion, respecting the desired equivalence of academic and medical scientific courses, of which we talked this morning. The only means to the attainment of that desire is a standard, an authoritative standard, of minimal requirements in these courses, a measure of uniformity in them, wheresoever they are given. Determine this standard for the first two years in the fundamental sciences in medicine and require that academic courses conform to it. Recognize them if they do. Raise an examination bar against them if they do not. Then, and not till then, can academic and medical courses be treated interchangeably; then, and, I think, not till then, will the Minnesota Board rescind its action in denial of their effective equivalence.

Dr. B. D. Harison, Secretary of the State Board of Medical Examiners, Detroit, Mich.:

From my work on a state board for a number of years, I must have some knowledge of the requirements of preliminary education. In a majority of instances boards accept a diploma, or the form, without investigating its quality. They simply fall down and worship diplomas and certificates from habit. Michigan requires at least once a year a detailed statement from every recognized college, covering detail of its preliminary requirements in the form of a diploma or certificate, but every nine out of ten colleges state that they do not know anything, or very little, concerning the detail necessary in obtaining a diploma or certificate. It is the habit of almost everybody to bow down to diplomas and certificates without knowing what they mean or stand

for. They think a diploma represents so and so, but they do not really have any knowledge of its true value.

There is another phase of the question, that is, the percentage that is required in this country for passing, which averages about 75 per cent. This also has been a great worry and a great problem—this average of 75 per cent. in order to pass. In the Michigan act, in preliminary education the requirements are four years of eight months of high school work and 75 per cent. aggregate in examinations.

This fall I had an application from a collegiate graduate of Ontario with a four years' course of eight months. He had in addition taken the Ontario Education Department examination and obtained a certificate, but such certificate only testified to the minimum requirement of the Ontario standard, which is 33 per cent. A few of these candidates had obtained an average of 60 per cent., but as Michigan requires 75 per cent., they were refused an official endorsement for entrance to recognized medical schools in Michigan. Four of these applicants were from Windsor, Ontario, and the Principal of the Windsor Collegiate Institute wrote me as follows:

WINDSOR, ONTARIO, October 11, 1905.

DEAR SIR:

— handed to me to-day your letter of him of the 7th inst., concerning the methods of marking in Michigan and in Ontario. I cannot explain satisfactorily why the same pupil, or the same class of pupils should make such a much higher percentage in the same work in Michigan than they do in Ontario, all I can do is to draw your attention to some evidence that this difference is due to the examiners and not to the candidates.

Students in the Detroit College of Medicine frequently reach the standing of 97, 98 and 99 per cent. all round. I do not believe that there is a single case in the whole history of the Toronto School of Medicine where a student got such percentages. He is counted a most brilliant man if he takes 75 per cent. all round.

It is customary, so far as I know, in Michigan high schools and academies to require an average of 70 per cent. in order to pass the examination. At the recent University Matriculation and Teachers examinations in Toronto we sent up a fairly good class, and not one out of the whole lot made an average of 70 per cent. I cannot admit that our pupils are less able than Michigan pupils or our methods of instruction are not as good.

Ontario medical schools have always maintained a fairly high standard for entrance. Last year they required their candidates to make 33 per cent. on each subject. Next year they are asking 40 per cent. This young man,——, can be admitted to the Ontario schools of medicine but must, before graduation, pass his matriculation examinations in history.

In Michigan high schools and academies the examinations are conducted by the persons who have prepared the pupils. In Ontario the papers are set by outside examiners, university men who do not teach high school work at all, and consequently questions are sometimes asked on work the candidates have not taken up.

I, personally, have had some experience on both sides of the line. For two or three years I marked papers on the teachers examinations of Wayne County, Michigan, and was instructed what marks to allow for certain kind of answers. I allowed 70, 80 and 90 per cent. for some papers that in Ontario would not get 20 or 30 per cent., if that much. I was on the Board of Associate Examiners for the Ontario teachers examinations for three years and we marked papers most critically, and in very few cases did the pupil get as much as 70 per cent. Had Wayne teachers' papers that I read been marked by the same standard as the Ontario teachers were marked, I fear you would not believe my estimate on the number of failures there would be.

Finally, I am writing you in this strain not so much to gain registration for any person, as to show you and your Board that Ontario and Michigan pupils cannot be compared on a basis of their percentages, without taking into account the difference in the mode of conducting the examinations and the standard required in answers.

Yours truly,

F. P. GAVIN.

Why should a student in the same class of work and practically the same test in examination, only obtain 40 per cent. in Ontario and 80 per cent. or 90 per cent. in Michigan?

If the Principal of the Collegiate Institute, as quoted above, is correct in his statements (and I believe his statements are correct) students who are credited 40 and 50 per cent. in Ontario are credited 80 or 90 per cent. in Michigan and other states.

Dr. Hawley, of Burlington, Vermont:

On account of the lateness of the hour I will not continue the discussion.

In behalf of the committee, I will ask that this report be referred to the council for their action, as well as for their decision in regard to further work by the committee.

REPORT OF THE COMMITTEE ON THE TEACHING OF HYGIENE IN PUBLIC SCHOOLS.¹

(Continued.)

RÉSUMÉ.

The plan of work of the Committee to Investigate the Teaching of Hygiene in Public Schools² was stated in the Bulletin, June 1905, as follows:

The committee finds five chief methods by which public schools are directly teaching personal, domestic and public hygiene, including physiology and anatomy. The committee will not consider in detail the school environment and customs indirectly influencing pupils' standards of hygiene.

The direct methods are:

(1) "Domestic science," including cookery, foods and nutrition; sewing, materials and dressing; care of the house and of the sick; emergencies.

(2) Physical training, including gymnastics, play and athletics, and various physical habits.

(3) Biology ("nature study") and "science teaching," showing conditions, phenomena, and processes of physical life.

(4) Medical inspection, teaching prevention of ill health, personal, domestic, public.

(5) Physiology and hygiene with special reference to the effects of alcoholic drinks and narcotics upon the human system.

(6) Several sporadic methods.

With one exception this teaching is by the "laboratory method," i. e., practice is the essential feature, less or no time being given

¹ Presented to the American Academy of Medicine at Chicago, Ill., November 9, 1903.

² At the annual meeting, June, 1903, the following was voted: "*Resolved*, That the president appoint a committee of three to investigate the teaching of hygiene in our public schools, and to report to the Academy at its next meeting."

The president, Dr. McIntire, appointed, accordingly, Dr. Helen C. Putnam of Providence, Rhode Island, Dr. Edward Jackson of Denver, Colorado, and Dr. George G. Groff of Lewisburg, Pennsylvania.

The first report was presented to the American Academy of Medicine at Atlantic City, June 6, 1904, and the committee continued, and was published in June, 1905, Vol. vii, p. 1.

to text-books. "Scientific temperance instruction" (the name used by the progenitors of the fifth method) is chiefly by text-book, less or no time being given to demonstration.

The committee submitted in 1905 as the first section of its report a study of all the laws regulating the teaching of physiology and hygiene, and a study of 73 common school text-books on the subject written since 1882, the year of the first law.

In summing up the details of the Federal and 45 state laws¹ the following observations were made:

(1) No law states what shall be taught as to the nature and effects of alcoholic drinks and narcotics upon the human system; nor that total abstinence shall be taught.

(2) No law prevents the teaching of temperance from an economic, moral, sociologic, or other view-point than physiologic.

(3) No law prevents the teaching of hygiene through "domestic science," physical training, biology, medical inspection, or in other ways.

(4) No law requires indorsement of text-books by the Woman's Christian Temperance Union.

(5) Forty-two laws do not stipulate the space² for temperance in text-books on hygiene; 43 laws do not specify number and length of lessons² in hygiene (including temperance).

In other words:

These laws leave ample openings for other text-books, methods, teachings, to any interested in hygiene (including temperance for physiologic reasons) who *have the capacity* to take advantage of such openings to demonstrate better ideas.

In the study of text-books, 35 "indorsed," with 16 revised editions, 35 not indorsed, with 6 revised editions, and 3 laboratory books, a total of 93 volumes, the following notes were made.

Specialists in natural science are replacing physicians and general teachers as authors.

¹ These laws as existing in 1903, compiled by the committee, are published as a preliminary report in the Bulletin, April, 1904.

² Minimum is specified in other three or four.

Nearly all contain the following topics in hygiene, listed in order of frequency.

Foods, with discussion of classes, nutritive values, and cookery (occasionally). First aid to the injured, care of the sick, quality of clothing, common diseases, poisons and antidotes, drinking-water and drainage, cooking, several gymnastic exercises, contagious diseases, several active games, antiseptics and disinfectants, "public hygiene," food inspection, patent medicines, school inspection, tests for eyes and hearing. The great majority of the topics receive only briefest discussion, and the last seven are chiefly in a few recent books.

These final notes on the evolution of text-books were made:

(1) The subjects have been simplified until we have 37 text-books for elementary grades, 13½ million pupils who go no further in the schools; a few books as excellent for their purpose as are any of the high-school books for theirs. Twenty-two years ago there were practically none.

(2) The average proportion of hygiene is one-third of modern text-books, a little more in elementary grades and less in high school. A very few give more than one-half their pages to it. The average in 25 books "for high schools" (or colleges) published before 1883 is less than one-twelfth.

(3) Illustrative experiments in all grades are very greatly multiplied; and for the high schools since 1897 there have been published 3 books entirely of simple laboratory experiments; and one text-book in which experiments constitute fully one-half the book, forming the basis of its teachings. Even in 1883 a few suspected that to try to teach children science without demonstration results in "a mere mummary of words."

(4) Easily observed facts about other objects in animal and vegetable life, and simple principles in physics and chemistry are much more often utilized to make the main subject clearer, the former especially in elementary grades.

(5) Scientific progress is reflected not only in many details of accuracy of statements, but also in added teachings concerning cells, cerebral localization and the nervous system; bacteria, communicable diseases, dust, antiseptics; inspection of schools, foods and milk; common intoxicants and patent medicines. A few school books before 1883 urged the dangers of alcoholic drinks, usually employing the confirmed inebriate as an example.

(6) There are fewer pathologic details (or they are selected with greater discretion), and more attention to normal states. The ideal of a healthy, active physical life as a basis for success and happiness is kept in the foreground and made more interesting. That "success depends on health" is fortified in several books by numerous lately discovered facts in school work and business life.

(7) One feature of all these volumes is that all relating even remotely to the anatomy, physiology, and hygiene of the reproductive system is omitted.

The first section of the committee's report concluded as follows:

The committee has endeavored to present impartially such details as it has had time and opportunity to collect. It has so far as possible presented facts rather than opinions, and will follow the same plan in studying the other direct methods of teaching hygiene mentioned in the introduction. After these have had a reasonably fair survey, comparisons and conclusions will follow with as just discrimination as to what is good and what is desirable as this basis of facts allows.

SECOND SECTION: STUDIES OF THE PRESENT TEACHING OF HYGIENE THROUGH "DOMESTIC SCIENCE" AND "NATURE STUDY."

GENERAL INTRODUCTION.

In the preparation of this report on the teaching of hygiene through "domestic science" and through "nature study" as it is called in the grades, or botany, biology, chemistry, physics, "science teaching" in high schools, eighteen cities east of the Mississippi have been visited, and over seventy classes in domestic

science and nearly as many in nature study have been observed, in elementary, high, normal and some special schools. Also numerous reports have been examined and several leading educators and citizens as well as a considerable number of members of school boards, superintendents, principals, and general and special teachers have been consulted.

The committee begs to acknowledge here in behalf of the Academy the courtesies and generous responses that have been met on every side. Such cordial assistance is most gratefully appreciated as coming from public officials than whom there are no others more crowded with duties.

It is not possible to present within the reasonable limits of this report all the details observed concerning the subjects of investigation, nor is it essential to a fair presentation. An attempt is made to give the chief features and chief tendencies so far as they affect the teaching of hygiene.

One must note especially the enthusiasm of special teachers of domestic science and of natural science and the absorbed interest of their pupils in the lower grades particularly in spite of the unusual freedom of moving about and other variations from classic school methods. Also one finds a very general and confident belief that these subjects have come to stay, and that they are in the midst of rapid evolution into more definite methods for teaching them. In the most progressive cities practically all new school houses are building school kitchens, sometimes dining rooms, and when possible providing ground for school gardens—the outdoor laboratory for the natural sciences, while old school buildings are resorting to various expedients to supply these needs. In very many places private citizens bear the expense attending their introduction.

SPECIAL TEACHERS.

Both domestic science and nature study have been growing in the schools for about the same period as has instruction in physiology and hygiene, but the former have developed far less widely. This difference is partly accounted for by the support which the Woman's Christian Temperance Union has given to instruction in physiology and hygiene as a basis for instruction in temperance.

It is also partly due to the difference in cost. Physiology and hygiene, and in the great majority of schools the natural sciences have been taught by the general teacher. Domestic science is invariably taught by special teachers when cooking is included, and at least requires special supervisors to guide the general teachers when sewing is taught, while for both more or less special equipment is needed. Although expense has been an obstacle to rapid extension, probably not over 100 cities having domestic science in their schools, special teachers on the other hand have produced, are producing unquestionably more definite educational results. In the very few cities where there are special teachers of natural science, particularly in the grades, the educational results are conspicuously superior. Many educators believe "nature study" under the general teacher is in many cases, not in all, chiefly a way of "killing time."

The salaries of these special teachers vary from \$300 to \$2,000, and this indicates fairly the wide range in their qualifications. Not infrequently we find that a general teacher from the grades or a normal graduate spends a few months, possibly a year, in perhaps a school of local reputation only, "cramming" so-called "domestic science," and begins teaching with this inadequate preparation. Many are high school, normal or college graduates who have taken special courses of two or three years at special institutes such as Pratt or Drexel.

Another small group, college women as a rule, add to their undergraduate courses in biology and chemistry extended university graduate work in physical sciences, in sociologic studies, and in "arts and crafts," and special research work with such eminent scholars as Professor W. O. Atwater and others found at our chief educational centres. Special teachers in biologic subjects, in chemistry, physics, etc., are with very few exceptions in high schools only; are as a rule college men and women, who have had in many cases additional special courses often indicated by master's or doctor's degrees. The authors of numerous text-books, including text-books on physiology and hygiene, are from these two groups of specialists.

Domestic Science Courses.

As one of the latest best series of text-books was examined last year to assist in gaining a fair understanding of the possibilities and aims of direct text-book instruction in physiology and hygiene, so an elementary and a high school course in domestic science by two of the best special teachers will be reported for the purpose of learning what is attempted as being possible and desirable to introduce concerning hygiene in such courses.

EQUIPMENT.

A school kitchen, or kitchen laboratory as it is sometimes called, is equipped with an individual work table for each pupil, having gas stove and oven, and a variety of utensils including thermometers and measuring glasses. Less fortunate schools require four or more children to use the same table, or, worse still, the class looks on while two or three assist the teacher to do the work.

The laboratory has in addition a coal range, possibly "Aladdin oven" and "hay box," and the general furnishings of a home kitchen, as sink, cupboards, large table, scales, etc. On the walls for reference are charts of the food principles in various food-stuffs on the market with nutritive values in calories; diagrams of cuts of beef, mutton, etc.; of plumbing systems and traps; reports of state or city board of health; tables for reference to chemic formulae, details in physics or in biology. Along the side of a few kitchens runs a table with reagents and apparatus ready for settlement of questions in chemistry on the spot. Other kitchens open directly into the chemic laboratory. A portion of the room or an adjacent one is used for a dining room. In two schools visited a sleeping room, bath room and laundry are part of the equipment for teaching sanitary housewifery.

In some cities there is the same tendency as in other public expenditures to put money into buildings and equipment rather than into teachers, or as one in an elegant high school said: "It is a question here between eastern rugs and salaries"—in the last analysis a question of the quality of citizens produced. Where we should have stable civil service control we find fluctuating

political influence—as disastrous to educational progress as to other municipal betterment.

A HIGH SCHOOL COURSE.

This accomplished instructor is teacher of chemistry (her certificate admitting pupils to the highest universities without examination) as well as of domestic science. She easily ranks among the leading teachers in domestic science in public schools and has had in preparation some of the best advantages in this country.

Her course is elective and extends through the four years of high school. Her assistant is a college woman, graduate of a three years normal course in domestic science. Her teacher of sewing is a high school graduate, with the additional training given at Pratt Institute in sewing and domestic art. In the following outline only those points are mentioned bearing upon the teaching of hygiene and sanitation.

The instructor states that although physiology and hygiene are taught in the lower grades of her city according to law, the children coming to her classes know practically nothing of them. In this city no text-books in hygiene are used in the grades. They have recently discontinued one published in 1884 and are considering the introduction of new books. The general teachers give fragmentary instruction weekly at morning exercises or other convenient intervals, less systematically on physiology and hygiene than on cigarette smoking and the use of alcoholic drinks.

Domestic science is also taught in the two higher grammar grades. The instructor states that this is of no special advantage to her classes because many, probably half or more, do not get the grammar work, their school not having been equipped, or they come from a private school or from some other city, or the standards of the lower teachers are too varied. She therefore begins with rudimentary principles throughout her course.

This lack of coordination and uniformity, and particularly the superficiality of instruction in physiology and hygiene is more or less characteristic of all the cities visited. One cannot affirm that this special high school work suffers in consequence, since the age of the pupils and the view-point of the instructor might allow the

subjects to be advantageously handled, from fundamentals up, after her more mature fashion. Undoubtedly elementary schools influence pupils' choice of electives.

It is, however, evident that public demands on public schools are just now exceeding their capacity, and that in the process of readjustment between classic aims and twentieth century needs almost unavoidable confusion exists. It is in such a transition period, before new features are "settled," that favorable opportunity for bettering instruction in hygiene offers itself—an opportunity to be seized promptly and developed wisely.

Correlation.

Physics and chemistry in this school are definitely correlated with domestic science, the latter being regarded as the practical application of several sciences and arts to living—to a very large and important part of living. The instructor in physics says: "I have certain principles in physics to teach. I wish to teach them through examples in the pupil's daily environment to fix them in memory by their familiar presence," and asks for suggestions of their domestic applications. The instructors in art and in biology pursue similar methods.

The wisdom of intelligent coöperation is evident but is not always found to this degree, sometimes is apparently ignored. In another school the question put a teacher of physics, "How do you coordinate your work with domestic science?" was answered: "I don't believe in coordination. If you teach physics, teach physics; if you teach chemistry, teach chemistry." "But why not economize the pupil's time and energy, get him along faster by teaching some of the principles of both through familiar domestic events?" He pronounced sentence against himself by replying, "*Because I have noticed that children never remember in one department what they learned in some other.*" The reply is a text for a volume of commentary on public schools in their relation to citizenship.

By this correlation in physics, chemistry, art and the natural sciences, the theories and laws of energy, liquids, gases, heat, light, electricity, lead directly to examination of methods and apparatus for warming buildings, ventilation, plumbing, light-

ing, municipal sanitation, sewage disposal, street cleaning, water filtration, etc., and form the basis of much of the work in the domestic science department.

In this domestic science course text-books are not used except for reference. The department has an up-to-date little library in its kitchen, as do many others.¹ Note-books are only kept for the pupils' own satisfaction. Other schools utilize them for training in English, and in accuracy and conciseness in writing (thinking).

Sewing.

In sewing, a two years course, manual details and art principles are elaborated to a greater degree than the uninitiated would imagine.

Direct instruction is given on the hygienic value of the materials in hand, with reference to use as clothing in different ages, occupations, climates, seasons, weathers, the physiologic reasons being studied; also instruction concerning the effects of the fit of garments upon habitual positions and physical development; the hygiene of the skin, its anatomy and physiology, bathing, changing clothing; dress of infants and children. This instruction, including quizzing, is given in short instalments during periods of monotonous handwork, when the pupil's mind can be occupied with this correlated matter. No additional time is required. This teacher believes personal hygiene, cleanliness and neatness can be taught still further in this way, and has observed improvements among her pupils assuring her of its value.

In the very great majority of sewing classes, such instruction if attempted is much less. The question "How far do you teach the hygiene of dress?" often received a blank response, some not believing it practicable to combine the two—as others are doing. All this is true of grammar as well as high school classes, and in grammar grades, as was pointed out in the first section of this report, the instruction could reach nearly three million children of the poorer classes, being therefore proportionately more important.

¹ Very few, perhaps five, "all-round" text-books for children have been written. A larger number of pamphlets, leaflets and cards are used.

Housewifery and Sanitation.

Hygiene in other lines of domestic science is taught by the experimental method through the four years after the following plan. (The two outlines of high school courses in Appendix D should be read as they are very suggestive.)

First Year: Cleanliness in Preparing Food.—Canning, preserving and bread-making from a biologic viewpoint, requiring work with microscope. Hygiene in serving food. Cooking of numerous dishes with reference to flavors and digestibility. Study of food classes and their functions as nutrients. Manufacturing processes with reference to conserving nutritive values (field work, visiting). Food adulterations. Physiology of digestion. Dietaries (general). Practice in marketing.

Second Year: Chemistry of Foods, Digestion, Cleaning.—Food analyses before and after cooking; testing for proteid, starch, sugar. Fermentation. Study of butters, oils, baking powders, infant foods, malted foods, preserved foods (tinned, canned, dried) condiments and sauces; of cleansing agents (washing-powders, soaps, etc.). Study of digestion by saliva, artificial gastric and pancreatic fluids. Dietaries computed to supply the usual needs of a man, a woman, a child, a student, a laborer. Menus for breakfasts, luncheons, dinners, for the day, month, season, for families of four to six; planned and single meals cooked.

Third Year: The Sanitary House.—Soils, sites, materials, construction, plans. Building laws. Modern systems of plumbing inspected; care of plumbing; tests for safety; use of disinfectants. Inspection of heating apparatus. Methods of lighting and of ventilation. The physics, physiology and relative merits involved. Manufacture of coal- and water-gas in detail. Inspection of city water supply. Chemical tests. Filtration. Sanitary furnishings.

This year's work is largely "field work," visiting places for actual inspection.

Fourth Year: Household Biology.—Study of yeasts, molds, bacteria; dust, air, water, milk, by means of cultures, counting colonies, etc. Domestic applications of bacteriology. Germicides, antiseptics, disinfectants. Contagious diseases. Home

nursing, including preparation of food for the sick, and practical instruction by a graduate nurse. Home treatment for simple accidents.

In another school visited, under contagious diseases, syphilis and gonorrhoea are enumerated. The term "venereal" and the immoral associations are merely alluded to. The brief discussion touches rather the increase in society, the effects upon the health of the individual, upon the size of the family, upon the census, and upon descendants; also methods of communication including use of articles in common in families, in public places and in industrial establishments. The very able man at the head of this school, while wholly approving the discussion as given in this department, has not yet yielded to earnest requests for corresponding instruction in his senior class of young men. For the latter and for young women not electing domestic science he has no courses logically leading to the subject.

About seventy high schools offer domestic science with details varying more or less from the three courses presented in this report. Perhaps fifteen schools rank with these in scientific merit. Only one pupil in twenty goes to high school. Hardly one-quarter of the pupils in these seventy schools elect domestic science, no boys having it. In other words, of approximately 600,000 high school pupils in the country, possibly 20,000 begin such a course, possibly 6,000 finish it.

A GRAMMAR COURSE.

There is as great a chasm between high and grammar schools in the quality of this work as there is in that of many other departments,¹ a chasm not due to a corresponding hiatus in mental capacity at these ages, but rather to the inferior standards of school boards and superintendents for the appointment of teachers. To this general statement there are a few exceptions, and one of the exceptional courses in domestic science is chosen to demonstrate what can be done.

Sewing is offered in more schools than is cooking probably

¹ It seems unreasonable, short-sighted, even tragic. Its extent and significance can hardly be realized except by a tour of inspection in one's own city at least.

because the outfit is less expensive. Cooking is found in the majority of grammar schools in about 100 cities for girls of the two (usually) or three higher grades. In four cities visited boys also were in one or both of these classes by choice. They wanted cooking "for camping out," or "to help when mother is sick." Boys take this course in the elementary school of Chicago University and in some other private schools. As a laboratory of applied sciences and arts some educators consider it invaluable in the elementary training of both sexes, and that there is every reason why boys should have at least portions of this course. Their interest is keen. For them "manual training" (usually woodwork) is considered an equivalent by some. At this point a controversy between educators exists which will be touched on only so far as essential to the understanding of the committee's special subject.¹

In domestic science in grammar grades there are two marked tendencies that physicians should be alive to. One is to make it "manual training" simply (or chiefly), under the man at the head of the wood and iron work for boys. In these cases, with few or no exceptions, the "supervision" is of the finances (expenditures, salaries, etc.) of the department, while the actual details of teaching, scientific or manual, are practically unsupervised, each teacher working as she sees fit, possibly in some general plan with others by mutual agreement.

The other trend is to make domestic science a department of applied sciences and arts, under a scientifically qualified supervisor, for the promotion of more wholesome living and higher citizenship. It is for physicians to decide how they will use their influence in their own communities. Educated women and trained specialists are among those working with foresight and wisdom toward the latter end, appreciating the value of raising home-making to higher planes of intellectual as well as of manual accomplishments.

¹ The committee's investigation was undertaken in total ignorance of the controversies alluded to. But the many surprising demonstrations of differences in excellence at last forced conclusions that have been corroborated by later reading of educational authorities and by personal communications. Practically (politically?) it is a question of who shall supervise departments of domestic science.

The following outline is for seventh and eighth grade pupils, 10-14 years, under a general supervisor who upholds the idea of applied sciences, and the course receives additional encouragement from active public sentiment. Under such circumstances, it is hardly necessary to say, teachers are chosen with special discrimination. In this school there was but one child of American parentage, the others being Jews and Italians from the poorest wards.

On entering the class room each donned a clean white apron (whose laundering she had been responsible for at home) covering dress and arms, and white cap over braids and curls, pinning her hand towel on her shoulder. They had been made in her sewing course. After scrubbing hands each presented them to the instructor for inspection, and if nails and skin were not exquisitely clean even from ink spots, as well as some other details of toilet, she stepped back to make them so before being "passed." But three in the class of twenty-one "failed" (it had been a month in training). These honestly supposed the hands submitted after so-called washing were clean, and one "failed" three times. The incident illustrates the vagueness of this first essential idea in practical hygiene and suggests the value of mere recitations about cleanliness to children whose homes do not supplement the school.

The routine continued is as follows: The teacher inspects each child's individual dish wiper, cloth, utensils and desk for spotlessness and other details of cleanliness and orderliness before she is dismissed; and the meaning of honesty in work as well as of consistency in cleanliness, through her clear eyes and sweet voiced "Do you think that is right? No? Then do it *right*" impresses character as well as standards of living. Only a visit after two years of such training discloses to what degree. Then we find a pretty neatness, accuracy and intelligence—a mental awakening—replacing the earlier slovenliness and vacant expression.

It is necessary to observe a number of such classes in different cities to appreciate where the teaching of household sanitation must begin; to properly value the above and following details and what they stand for in the course, and in the life of the community.

The smoothly finished floor, the windows, sash curtains, wood-work, cupboards, refrigerator, stoves and range, brass pipes and faucets, copper boiler and all parts of the room as well as all utensils are kept bright, spotless, dustless, week after week through the two years by the little house-keepers, while in cooking they practise handling food with equal mindfulness of dirt, dust and flies as germ-carriers. The lesson of harmful bacteria is enforced by the painful cut, scratch, bruise or burn—there are always examples at hand, when unclean hands or bandages allow germs to make trouble. In this connection what to do in simple emergencies is learned.

The contrast between these kitchens from odorless garbage pail to dainty "dining room" and kitchens where cooking—the chief "manual training" idea—predominates is as marked as is the difference in intellectual exercises in the two methods. This routine work and inspection are as faithfully carried out in the last month of the two years as in the first. The instructor believes that not a few lessons but constant observance of these fundamental details of cleanliness during these years is essential to learning the lesson; and that it produces results in the "making of an American" which often affect homes of the second generation even more than those of the immigrants themselves.

From cleanliness in person and house work they pass to the practice and simple theory of ventilation, of pasteurizing milk, sterilizing water, canning fruits and preserving foods free from harmful bacteria. They are simply instructed about germ life; they have a microscope for yeast and starch cells. With simple contrivances they collect CO_2 in fermentation, see its effects on combustion and learn its connection with respiration.

Cooking lessons are continually accompanied with comments and questions designed to fix elementary knowledge of food principles, digestion, nutrition, by frequent repetition and experiments. Pupils easily use the iodine test for starch, and test its digestion by saliva. They learn the heat test for albumen while cooking eggs and meat, the acid precipitation of casein while studying milk, and details by which to roughly estimate the quality of milks, butters, flours, etc. They find litmus paper

and household acids and alkalis quite as interesting as the capitals of Asiatic countries, and the qualities of C, O, H and N more fascinating than square or cube roots. Is knowledge of them less useful in the conduct of life? Or the mental discipline of acquiring it narrower?

The general principles of hygiene in eating and drinking, and combinations of foods to suit families, adults and children, are repeatedly taught by practice and discussion, as are the refinements of eating and drinking. The avoidance of alcoholic drinks and tobacco for hygienic and economic reasons is taught.¹ Finally there are a few drills in bedmaking, bathing, making poultices and other care of the sick.

In the two years course fully 120 simple dishes are prepared by each child one receipt being often used with intelligent modifications to fix the principles in mind. Reports of cooking at home are asked for. The pupils have actual practice in selecting good materials in market, while clean markets, pure food ideas, honest milkmen, city health regulations and clean streets and yards are also often called to the attention. They are taught by practice and theory not to scatter dust in the house or out of windows when it can be washed away or burnt up, not to sweep houses into streets, not to throw refuse of any kind into yards or street. Contagion is explained, and the avoidance of common use of articles and personal contact are practised understandingly.

They use no text-books, but occasional printed slips are systematically inserted in note-books opposite the child's written notes on his "laboratory work" on the same subject.

TENDENCIES TO POOR WORK.

It is necessary for the purposes of this committee to indicate in what directions tendencies to poor work exist. While this class of details is being reviewed the consistently honest capable work illustrated in the foregoing should be remembered.

The scantiness of scientific details, is often excused on the ground that thrifty but uneducated parents judge the worth of the course by the amount of cooking children can do to lessen the labor of the housekeeper; another excuse is, "Children won't

¹ See Mrs. Hall's remarks in discussion following this paper.

come if they can't cook something they like to eat;" another reason is evidently the limitations of the instructor; another, a fundamental reason for the majority of the shortcomings, is lack of supervision of the department corresponding in efficiency to that given the "three Rs." Very few if any school superintendents know the rudiments of housewifery or of the chemistry of foods; very few if any men giving instruction in wood and iron work to boys know it. Where the work is thoroughly well done invariably a scientific person is the moving influence, official or otherwise. A scientifically trained woman is supervisor in many such places.

In classes of cooking with the "manual training idea" uppermost the chief emphasis is placed upon memorizing receipts and prices of ingredients, preserving these in note-books, and cooking each year 60 (approximately) dishes, or seeing the teacher cook them, afterwards cooking them at home and reporting at roll-call. A small amount of instruction in hygiene and in "reasons why" is subordinated to the above. Much less attention is given to either the theory or practice of cleanliness. *Not infrequently* (but not always) grimy hands and black finger-nails, flying hair and a roller towel for 50 pupils are found. Dusty furnishings, cloudy windows, tarnished metal wear, and floors with ripples of dirt are part of the environment inconsistent with teaching cleanliness and hygiene, as are flies on uncovered food supplies, carelessly scattered crumbs, odorous garbage pail, neglected dish towels and cloths. The cleanliness of the table and cooking utensils is usually attended to, with more or less thoroughness.

In schools where the chief object is to learn to cook, logically it is a desideratum to learn to cook as many dishes as possible. The length of the period may be from one and a half to two hours.¹ The rush to cook a number of dishes in that time adds to the superficiality of the work and of the teaching. In one city it was a matter of pride that every school was cooking the same dish at the same time throughout the city, and that 90 (?) receipts would be cooked during the year. Such a pressure from authorities was felt that several teachers gave their instruction with such

¹ Once or twice weekly.

rapidity it would be wholly impossible to retain it. However, pupils were expected to retain chiefly receipts and prices and they were written on the blackboard. In several cities the food cooked is gobbled "on the run" instead of being used to teach the hygiene of serving and eating.

Some of these faults are sometimes quite as much or more due to higher authorities than the instructor. Some teachers recognize them acutely but believe themselves helpless except as they resign their positions.

Misstatements of Facts.

To illustrate another not infrequent line of poor work the following are selected as somewhat typical uncertainties as to facts.

(1) "A child of 100 pounds weight takes one-half pound food daily."

(2) "A child of 100 pounds weight takes two and one-half pounds food daily and three pints of drink."

(3) Copied from blackboard; "The nutritive part of meat is albumin or casein."

Heard in same class in explanation of the preliminary searing of broiling steak; "This white coat is because the heat has coagulated the casein."

(4) "Cabbage and cauliflower are very nutritious because they contain much gluten."

(5) "Cabbage contains less than 2 per cent. of proteid material and is not very nutritious."

(6) "Cellulose is of no use in the body" (frequently heard).

(7) "Starches, sugars and fats furnish energy and heat but do not build tissue" (frequently heard).

(8) "Proteids build tissue but do not furnish energy and heat" (more often taught correctly).

(9) "Teacher, is there any carbon in milk?"

Hesitatingly, "Perhaps. Why?"

"Cause I burned some and it turned brown."

Uncertainly, "Well, perhaps there is. A little."

Same class: "Milk contains a proteid. It is albumen, which you see in the thickened scum on the top of boiled milk."

(10) "The thickened layer is simply the dried top of the hot milk."

Number nine, a general teacher and unusually able pedagogically, had forgotten casein, and illustrates not only the misfortune of superficial preparation in science, but the not uncommon failing of refusing to admit inability to answer a question. The true scientific spirit was seen in a biologist in a grammar school who replied, "I don't know. You try to find out to-night and I'll try, and to-morrow we'll talk it over." The latter cultivates not only the scientific spirit—which is love of truth—but confidence in herself.

If an instructor taught that Nashville is the capital of Alabama, or that one-half of one-sixth is one-third the whole personality would bear ear marks corresponding to such illiteracy easily perceived by the average superintendent. An up-to-date superintendent, with scientific as well as literary training, *i. e.*, with an "all-round" education, could with equal ease gauge the inefficiency of the science "crammed" teacher. That such superintendents and supervisors are occasionally lacking is evident.

Significance.

The general significance of these typical illustrations of poor work is:

In some instances that normal training (whether state, institute or college) is not as thorough as it should be;

In some instances that the instructor has not a mind adapted to teaching science;

In all instances that the superintendent or supervisor is not equal to his or her duties;

In all instances that public demand for the teaching of domestic science exceeds the supply of good teachers and (or) the capacity of municipal school committeemen.

OBSERVATIONS.

The outlines of typical good courses demonstrate:

(1) That hygiene and sanitation are taught many girls and a few boys down to 11 years of age, not less efficiently than arithmetic.

(2) That their practice is as definitely enforced in these years as the correct doing of "sums," while the underlying principles

are quite as likely to be applied in after life to a not less degree in hygiene than in mathematics—such application being of equal importance.

(3) That *intelligent* interest in public sanitation, such as water supplies, milk inspection, pure food laws, clean streets, is practically cultivated in logical connection with domestic life and the individual.

(4) That with pupils of high school ages syphilis and gonorrhoea are discussed in their normal grouping with contagions, without emotionalism, and for the practical purpose of conserving health, parenthood and clean inheritance both for individuals and in the nation.

(5) That all the foregoing is built upon a basis of rudimentary physics, chemistry and biology, experience or demonstration reinforcing the exclusive memory system.

If a certain few leading cities are finding the time, the money, the ability to conduct this department with the above degree of excellence, while unquestionably maintaining a high standard in the usual subjects regarded as essential, eventually all can.

Nature Study Courses.

Numerous high schools have well equipped laboratories for physics, chemistry, botany, zoology, or biology. Their courses vary in excellence. Their possibilities for teaching physiology, hygiene and sanitation are evident.

Because the general program in physics and chemistry is familiar to physicians, this report omits details (some of which are indicated in the report on domestic science) with the general statement that there is a slowly growing tendency to introduce modern problems in the chemistry of physiology and of sanitation (especially water, food and milk supplies), and to study physical laws through their definite applications in household and municipal sanitary methods. There is no doubt that both tendencies can be accelerated by suggestions and encouragement from physicians, particularly medical inspectors and other health officers.

In laboratories of botany, zoology, or biology the opportunities for teaching human anatomy and physiology with a comprehensive outlook are constant; also for study of germ-life and of insects in relation to contagions, prevention and other biologic problems of disease, hygiene and sanitation. In many of the schools visited these topics are considered *more or less definitely according to the capacity or interest of the instructors*. Here again professional encouragement can strengthen the tendency.

Because of limitations of space this report will not discuss in detail the above features of these courses, but instead pass to another phase of the instruction that has been attempted in public schools only since biology and the study of cells has been developed as the common basis of all plant and animal study.

DIFFICULTIES IN TEACHING REPRODUCTION.

The instruction of children in laws of reproduction of living organisms and in immediately related topics is of great present concern to physicians and importance to society.

Public education until now has attempted to give the pupil a limited view of only the first of the two primary laws of life—perfection of the individual. The chief practical difficulties in the way of teaching the second—reproduction of the individual the public schools find to be three.

(1) Many children, probably the majority in cities, from grammar grades (sometimes primary) up have minds already pre-possessed with information so incomplete and so associated with ideas of immodesty and concealment, or of vulgarity and vice, that many instructors can see no way of clearing their minds that will not make thoughts, conversation and even actions worse. A class of instructors, not official but working in public places other than the schools, assist this education by sending literature and pictures through the mail to children whose names they have learned, or by handing such to pupils on their way to school, or by having some pupil distribute them. Teachers who have had personal experience with this form of evil among their pupils are among those most earnestly hoping for wholesome instruction to be made possible, and most bitterly resenting the

pedagogic "shutting the eyes" to conditions as they are. Other teachers with more or less experience proving that ignorance is not innocence, or with sufficient information to appreciate coming temptations and problems, and that knowledge of natural laws is the best preservative of good, earnestly wish their pupils could be taught the subject of reproduction rightly. Others, but a minority, express no opinion. Others maintain that "it would make bad matters worse," that it should be taught at home—even if it is not—even if guardians are incapable of it.

(2) Several teachers who have been compelled to straighten out immoral affairs in upper grammar grades have had intensely uncomfortable experiences not with the children so much as with principals or superintendents whose practice is "not to stir up such things"—but to overlook them; or with certain parents who pronounced them "immodest," "untruthful," "unjust," as a result of which, in spite of the gratitude of other parents, and support of some school officials and physicians, they have become profoundly discouraged, and *believe adults to be the greatest obstacle* to giving the wholesome instruction they would like to have attempted.

(3) Practically all teachers who are more or less concerned to have these natural laws understood by their pupils are at a loss to know how it can be brought about, or rather how competent instructors can be found, for nearly all are positive that the child's psychologic processes permit its unembarrassed accomplishment by beginning with plant and animal studies.

Whether children themselves taken as they come to school, or adults with false standards, or the incapacity of general teachers be the chief obstacles, that they are each and all removable is demonstrated in several schools visited in eighteen cities while preparing this report of methods of teaching hygiene.

HIGH SCHOOL COURSES TEACHING REPRODUCTION.

In the committee's study of 73 recent text-books on physiology and hygiene it was noted that the anatomy, physiology and hygiene of the reproductive system was omitted in all.¹

¹ Bulletin, June, 1905.

Biologic branches (botany, zoology, biology), with laboratories and special instructors in high schools as already stated, begin study of reproduction with the single protoplasmic cell, tracing its increasing complexity step by step into the highest plant and animal organisms.

Botany.

In several high schools approximately the following course in botany is pursued, strictly after the method of scientific research, each boy and girl having a problem to work out by experiment, observation and reporting.¹ The compound microscope is used with facility, also simple physical and chemical apparatus and reagents. Each plant is studied under three heads: (1) vegetative stage; (2) reproductive stage; (3) life problems. The plan was introduced with long foresight. The obstacles to be overcome are indicated by the fact that the topic "reproduction" throughout the book caused some consternation among a few parents and in school committee. The instructors' wisdom finally prevailed.

(1) *Pleurococcus*, *Nostoc* or *Oscillaria*.

(A) Vegetative and reproductive stages.

(1) With low and high powers study plants which have been properly mounted. What is the size, color, and form of plant?

(2) The exterior covering of the cell is the cell wall; important contents are the nucleus and cytoplasm, which together constitute protoplasm. The green coloring-matter of plants is chlorophyl. Which of these are present in the specimen?

(3) Does an individual plant consist of one or more cells?

(4) Are the cells alike? If not, how do they differ?

(5) *What evidence is there of growth and reproduction?*²

(6) *What is the arrangement and relation of the new plant cells?*

(7) Make drawings: (a) an individual plant and des-

¹ The full outline is found in *Studies of Plant Life* by Pepon, Mitchel and Maxwell. D. C. Heath & Co. The authors have departments of biology in Chicago high schools.

² All italics in this outline are ours.—*Com.*

ignate all of its parts; (b) other plants of smaller or larger size; (c) *stages of reproduction*.

(8) What is the general appearance of the plant in its place of growth?

(9) Some plants are inclosed in a jelly-like substance. Is this present?

(10) Make a tabulated comparison of these three forms according to the following scheme?

Name.	Color.	Size.	Shape of cell.	Cell arrangement.	Reproduction.	Other features.

(B) Life problems.

(1) Where are each of these plants found?

(2) Why is it found in such places?

(3) What is the significance of the green color?

(4) What is its food and how does it eat? (Experiments to show the necessity of water, of soil salts, of O and of CO₂; and to show turgor and explain osmosis).

(5) Why is it so widely distributed?

(6) *How does reproduction occur? Why?*

(7) How does growth take place?

A thoughtful glance through these details for the study of plants from the unicellular to the most complicated is very suggestive. After like fashion a progressive series is studied. The details of the study of reproduction only are quoted under a few.

(2) *Yeast Plants and Bacteria.*

(3) *Spirogyra or Zygema.*

(B) Reproductive stage.

(1) How is the filament increased in length? (Vegetative growth.)

(2) Is the filament one or several individual plants?

(3) With low and high powers study adjacent filaments with connecting (conjugating) tubes, also any variations in cell content. The union of two protoplasmic bodies

(gametes) which are similar is conjugation, and the resulting body is a zygospore.

(4) How does the color of the conjugating filaments differ from that of the vegetative stage?

(5) Make a drawing showing the different stages of this process and designate all parts.

(4) *A Mold.*

(5) *Vaucheria.*

(B) Reproductive stage.

(1) How many kinds of branches are there?

(2) What is their relation to the main filament?

(3) How do the distal ends of the branches compare?

(4) The elongated, more or less curved branches are spermaries and the somewhat spherical ones are ovaries. How are they related to each other?

(5) Are transverse partitions (septa) to be found? Why?

(6) Is there any opening in either spermary or ovary?

If so, where and why?

(7) At the distal ends of some filaments are enlargements which produce one or more motile bodies (zoospores). Are they to be found and what do they become?

(8) Make drawings showing reproductive stages, and designate all parts.

(6) *A Water Mold.*

(7) *Rockweed.*

(8) *A Lichen.*

(9) *A Mushroom or "Toadstool."*

(10) *A Stonewort.*

(B) Reproductive stage.

(1) With microscope observe the form and color of the fruiting structures, a spherical one (spermary), and a somewhat flask-shaped organ (ovary). Where are they situated?

(2) Observe the relative position of the spermary and ovary. What significance may this arrangement have?

(3) Study the spermary with low power and observe the

large cells (shields) that make up its wall. How are they arranged? Sketch.

(4) Crush a spermary and study its contents. Observe the tangled threads (spermatic filaments) sometimes with small lash-like cells within (male gametes). Sketch filaments.

(5) Study the ovary and observe the details of structure.

(6) The inclosed large cell is an egg (female gamete). The protective cells which cover it are cortical cells. How are they arranged and how do they terminate? Sketch and designate all parts.

The foregoing study of algae and fungi is finished with a tabulated comparison summarized under the heads, name, habitat color, structure, reproduction, life habit, food, economic importance, characteristic parts and drawings. Among the general questions are: How and why do water algae assume a filamentous form? Spore production is of what advantage to a plant? Why do some plants have asexual as well as sexual spores?

(11) *A Liverwort.*

(12) *A Moss Plant.*

(13) *A Fern Plant.*

(14) *An Equisetum.*

(15) *A Lycopod.*

(16) *The Pine.* A gymnosperm.

(17) *An Angiosperm.*

(C) Reproductive shoots (flowers).

(5) The essential parts are the stamens within the petals and one or more pistils each consisting of one or more carpels.

(6) Does each flower contain stamens and pistils? If so, they are perfect. But if not, are the imperfect flowers on the same or different plants? Why?

(8) Study the number, length (relative), and arrangement of stamens. Draw and designate the parts of a stamen, also any variation in length and union, if apparent.

(9) Study the number, form, and arrangement of the pistils. If more than one, are they entirely separate?

Draw (a) a pistil; (b) sectional views of the ovulary, showing one or more ovule chambers and the placenta of the ovules.

Next follows a detailed study of seeds, seedlings and *germination*; roots and their modifications; leaves and their modifications; *flowers* ("reproductive shoots") and some modifications, and including *pollenation, the ways of accomplishing and devices therefor, self-pollenation, cross-pollenation, experiments in the production of varieties; fruits with devices for dissemination of seeds.*¹

This outline is a meagre suggestion of the rich field of thought which the naturalist opens by his supplementary questions and information in the laboratory and on field trips. The likeness between life processes in all classes even in matters of heredity (degeneration, and the preservation of desired features) and environment are discussed by the pupils with spontaneous interest, frankness and refreshing good sense. In the study of bacteria, some instructors were ably using the opportunity to discuss problems of public health relating to contagions, milk, water and food supplies, etc., and intending to increase this study.

Zoology and Biology.

Zoology and biology in competent hands develop the study of animal reproduction (beginning with protozoa). Dissections of embryos are made; the laying of eggs and birth of young like the parents are seen in aquariums and vivariums, marine and amphibious animals, insects and birds being the material commonly studied.

The tendency in recent text-books and in the classroom work observed is clearly toward "comparative science," utilizing this biologic work on lower forms to teach human biology. The question was asked nine specialists in botany, zoology and biology: "Do you think it desirable to carry this teaching more definitely into human reproduction, social diseases, etc.?" They were unanimous in thinking it desirable, but had varying opinions as to the possibility.

¹ Experiments are performed on starches, oils, nitrogenous substances; on digestion, circulation, respiration, chemical changes by light, transpiration, root pressure; on problems in evaporation, heat production, irritability, etc.,—all with reference to plants.

In two classes (different cities) it is done for girls, medical women concluding the courses with three or four lectures on menstruation, pregnancy, child-birth, care of the new-born; and general consideration of the institution of the family, heredity, "the social evil," and effects of alcohol and tobacco habits, the last three topics being treated from a sociologic as well as physiologic view-point. For one class this teaching has been satisfactorily given two years; for the other, five years.

No classes visited except the one to be described undertake this for boys. Some of the difficulties were noted as follows: "Doctors are *not scientific* enough;" it was always agreed that instructors themselves do not feel equal to it. "Doctors don't understand the pupils' minds;" "don't know how to *teach*;" "are too technical" (professionally, not biologicly, was meant); "don't realize the scientific preparation the pupils have had;" "are not tactful;" "are not definite enough." "Probably there are doctors who know how, but I don't know any." The dangers (of unwise presentation) were said to be of offending, making morbid or immoral the pupils, or of shocking parents.

The essence of this distrust seems to be that the practitioner of medicine is difficult to find who is prepared or will take the time to prepare to present the subject of human reproduction and allied topics after the biologic method to which the pupils are accustomed. One biologist said: "In the Young Men's Christian Association I try to help young men to an understanding of social diseases, but I don't dare present it as it should be to any but the boys who have had biology with me in high school. Why? Because they won't take it right."

Reproduction Taught by Another Biologist.

Another biologist had 16 pupils from 13 to 15 years old in zoology. They were sun-browned healthy children in a small city, doing field work and their own collecting, and caring for the school garden, their "outdoor laboratory." They had, when visited, just finished recording very careful studies of pigeon and grasshopper, and were engaged on *paramoecium*, *vorticella* and *eudendrium ramosum*. Each had a Bausch & Lomb student's microscope and dissecting microscope, and worked independently.

The laboratory had numerous growing specimens, not the least interesting of which (to the pupils) was a cage of rabbits with young an hour old. There was a small museum.

The method of studying was through field work to observe habits and habitat; observations of animals in the laboratory; dissections, drawings in notes and on blackboard, descriptions; close and logical quizzing and talks from instructor; the study of blackboard diagrams in morphology and anatomy, and of museum specimens when necessary fresh material could not be obtained. Frequent "theses" were written on the animals studied, and these with note-books were faithfully criticized to each pupil. This unquestionably accounts for the scientific tone of a group of 15 papers received by the Academy's committee, extracts from which are given with this report.

These papers, sent without any corrections, were written simply as a review exercise in four days' periods (eight hours), with freedom to study between times, but with no assistance whatever from the instructor beyond the following outline on the blackboard.

"THE REPRODUCTION OF ANIMALS.

- "1. What phenomena are inevitable in the life of every animal?
- "2. How does reproduction compare with growth in importance?
- "3. Describe reproduction in the Protozoa.
- "4. " " " Coelenterates.
- "5. " " " various phyla up to and including the mammals."

Appendix E, page 454, should be read. The summary given below for brevity by no means equals the original extracts.

SUMMARY OF 15 PAPERS ON "THE REPRODUCTION OF ANIMALS" BY PUBLIC SCHOOL CHILDREN 13 TO 16 YEARS OLD, AFTER 7 MONTHS STUDY IN A BIOLOGIC LABORATORY.

Reproduction as essential as growth.

Protozoa, by division (including spores and budding) and by conjugation.

Amoeba and *Arcella* by division. Asexual. Illustrations.

Paramoecium and *Vorticella* by division and by conjugation of two individuals. Asexual and sexual.

Slightly complex animals, by division and by egg and sperm cells.

Volvox by egg cells developed by division in cavity of parent; and by sperm and egg cells forming resting spore.

Metazoa by budding and by egg and sperm cells. *Invertebrates* in both ways.

(*Coelenterates*.)

Hydra by budding and by two individuals each carrying both egg and sperm cells. Illustrations.

Medusa or Jelly-fish by budding and by two individuals carrying either egg or sperm, external fertilization. Alternation of generations. Illustrations.

Sponges by budding (zooids and gemmules), and by egg and sperm cells. Blastula and gastrula. Development of young in cavity of parent, liberated through mouth. Illustrations.

(*Echinoderms*).

Starfish, by male and female. External fertilization. Development of young. Illustrations.

(*Vermes* by egg and sperm).

Flatworm (planaria), hemaphrodite. Cloaca. Self-fertilization. Eggs laid. Illustrations.

Earthworm, hemaphrodite. Cross-fertilization. Eggs laid in case. Illustrations.

Tapeworm and *liver fluke*, each segment hemaphroditic. Parasites. Eggs laid. Illustrations.

Trichina, eggs laid in host.

Vinegar eel, viviparous.

(*Mollusca*, egg and sperm by different individuals.)

Fresh water clam, egg and sperm organs in foot. Eggs hatch under gills. Development of young.

Nautilus, testis, sperm ducts, vesicula seminalis, spermatophore and sac, penis, ovary and oviducts. Illustrations from museum specimen.

(*Arthropoda*, male and female. Brood pouches for fertilized egg or for embryo.)

Cray fish, ovary, spermary, and ducts. Eggs laid and fertilized on swimming feet. Development of young.

Spider, reproductive organs; eggs in nest or young-born like parent.

Butterfly, testis, vas deferens, vesicula seminalis; ovary, oviduct. Metamorphosis. Illustrations.

Grasshopper, reproductive organs, laying eggs, moulting. Illustrations.

Ants, bees, mosquitoes, dragon fly, house fly; general reports of reproduction and development of young.

Vertebrates.

Fishes, reproductive organs (male and female). External and internal fertilization. Eggs and embryology. Illustrations.

Amphibians; frog, reproductive organs (both sexes), embryology, development of tadpole. Illustrations.

Reptiles, reproductive organs (both sexes), eggs and embryology. Illustrations.

Birds; pigeon, reproductive organs (both sexes), eggs and embryology. Illustrations.

Mammals; rabbit, reproductive organs (male and female), embryology. Illustrations.

The instructor's intention is to introduce the children to the *general principles* of reproduction, not to have them memorize details. Several terms used in this summary (made from children's papers, not furnished by instructor) mean more to the scientific reader than is meant in class. "Embryology," for instance, means knowledge of gross development, structure and physiology, as a child knows he has arms, legs, head, and that he eats and breathes. These pupils have simply learned what an embryo is so clearly that they will never forget.

Not less excellent work than this on reproduction was also done on digestion, circulation, respiration, and in studies of habits and environment of these and other animals. The children made special written reports on insects and birds in their locality, identifying 25 birds and 40 insects.

To students in biology the above summary indicates that the work covered but an infinitesimal part of the subject—a very small part of the alphabet. It is really easier for children, partly because fascinating, than the rudiments of such abstract subjects as mathematics and grammar. But to the non-scientific, because ignorant of the elements of biology, it looks very probably “too difficult,” very possibly “useless.” It is becoming, however, a foundation principle in education that *a child's interests properly followed up in the schools, lead to the best educational results.*

Following this review of reproduction the instructor gave a talk on human sex relations based on biology and Dr. Morrow's “Social Diseases and Marriage.” It was received without exception wholly in the right spirit. The instructor has also a class of fifteen in botany, and two classes in physiology of about forty each. With both she pursues similar biologic methods.

NATURE STUDY IN ELEMENTARY SCHOOLS.

In primary grades.

In several cities visited the schedule for “nature study” or “science teaching” includes physiology and hygiene as one of its divisions, usually for the winter term when “nature material,” gardening and field trips are less convenient.¹ In the great majority of schools nature study is not definitely planned and such instruction in human affairs as is given *depends entirely upon the individual teacher.*

It is evident that a biologist teaching children of 6 to 14 years can easily by comparisons teach human anatomy, physiology and hygiene. Such elementary instruction is limited more by the teacher's capacity than by either the children or the opportunities. This was found attempted in *very different degrees* by many elementary general teachers. Throughout the schools visited the average of excellence seemed far higher in primary grades, including kindergarten. Stories of plants and animals and simple explanations of plant and animal phenomena in the

¹ It is probable that the committee will find it necessary to supplement its studies of laws and of text-books (Bulletin, June, 1905), with a section on physiology and hygiene “as it is taught.” Such classes when catalogued under nature study will be considered then.

school-room, comparisons with themselves, rudimentary exercises in seeing and telling what is seen are a continuation of Froebel's beginnings. Sprouting seeds, cocoon and larvae, eggs laid and hatched into life are useful material.

In grammar grades.

In grammar grades, however, one is again shocked at the inadequate provision for instruction compared with that in the next grade in high school. Three biologists with master's degree were found teaching children of the sixth, seventh or eighth grades, 10 to 13 years of age. Observation of their work and of the results with children of these ages throws much light on what should and can be *wisely attempted in grammar grades with competent teachers*. Very special mention should be made of the superior resourcefulness exhibited in the outdoor laboratories (the school gradens) and in the growing plant and animal life in the school-rooms.

A brief outline of one course in seventh and eighth grades will be given. The instructor, in addition to a normal course and experience as a general teacher, had taken special work in biology and related studies at Chicago and Cornell universities for the definite purpose of adapting such instruction to pupils in the grades.

She had a "continued story" once or twice a week lasting through the two years—the "story of the world we live in." It began with the exhibition of some attractive chemical experiments illustrating gases, vapors, condensations into solids, cooling, some of the properties of water, light, heat, etc. This year's work was then continued from the simplest forms of plant life up to the complex, with the frequently repeated text: "The two objects of every living thing are to perfect itself and to reproduce itself." For every plant studied this year and every animal studied the following year these two objects were the lines of study. In the processes of perfecting, human and personal resemblances were constantly traced.

For microscopic cell life yeast cells (with microscopes) were used, and the children drew the cell reproduction seen. They saw and drew (with the teacher's help), *spirogyra* and repro-

duction by conjugation of like cells, *vancheria* and conjugation of unlike cells, all leading to the terms "mother plant" and "father plant" continued through the two years with allied terms in plant and animal "families."

Through higher plant forms, spores, seeds, flowers, pollination by natural and artificial methods, these themes were traced, by the children themselves under the teacher's guidance. Each child in the autumn had adopted a favorite tree seen on his way to school, of which he made reports of foliage, wintering, budding, leafage; its nests, birds, insects, and neighbors. These trees and their economic, artistic, and other values, as well as biology, were the last topic. This outline necessarily omits important features and does not reflect the interesting personality that inspired the pupils, but the closing lesson is worth giving, suggested by the fall of a favorite tree in a wind storm. She recalled the many years that rain and sunshine, the seasons, soil, and dews had helped the little seed to grow into this graceful tree with beautiful leaves, where the birds nested and sang, and which the children loved, "just as you are growing up and we are trying to help you become good men and women. But if in your thoughts or in your life there is hidden somewhere some wrong habit that you would not like to have your mother know nor me—just like the rotten wood in the heart of this tree—then the storms that come in your life too will make you fail, and you will grieve all your friends, and all our work will be wasted." The children found this a very interesting and impressive demonstration of the value of "goodness all through."

The study of various animals along these lines in the eighth grade utilized insects, birds, white mice, tadpoles, etc., kept in vivariums, cages and aquaria, thus showing various forms of development daily. They visited a government fish hatchery in the neighborhood and were simply taught the details of artificial propagation. Economic and sociologic as well as physiologic and hygienic principles were taught. In answer to the question, "Do you think you have taught anything of clean living?" the reply came emphatically, "*I am sure I have.* There were two boys two or three years older than the others. They

were precocious and unclean-minded. It could be seen in their faces at the beginning of the lessons. I had no private talk with them, but at certain points I took special pains to have them understand. Before the course was over there was a complete mental revolution, and moral too, I know from their manner. They are clean, good boys now and twice as bright."

IN CONCLUSION.

There was nothing exceptional either as teachers or as biologists in these special instructors. Each was good in both capacities. Thousands of equally valuable specialists are possible if the schools demand them. The *exceptional* feature is that these few grammar schools have undertaken it. They are demonstrating success. Not until this real nature work is seen can one fully estimate what remains to be done in all grammar schools of the country.

The fact that so few general teachers in grammar grades do efficient scientific work is clearly due to first, temperamental incapacity for methods of scientific research. This may be combined with excellent ability for teaching the "three Rs" and for other features of general work. Second, it is due to educational deficiencies. Of 32 general teachers not one had more than a very small fraction of the preparatory training in natural science with which five special teachers had found it necessary to supplement their own enthusiasm for such studies in the grades. The science training of these thirty-two was also many times less than the training they had gone through to teach arithmetic, language, or even music and gymnastics. The best work by general teachers was found in those cities where a biologist supervised their work. In these places the teachers relied upon the supervisor's visits and stimulus; and their work was very far from that of the biologists quoted.

For general teachers a few books outlining practicable courses have been written. A parallel was presented in the committee's report on recent text-books in physiology and hygiene, very excellent and adapted for all grades. The query now as then is, "Are ordinary teachers able to use these books?" Another

inquiry also is pertinent: "Do school boards adopt these best books?"

The fact observed is that in those very rare schools where a certain recent excellent book is used as a guide, the differences between the quality of work by various instructors is very much greater than the differences in their general work, while the best was not as good as has been seen elsewhere by special teachers. Text-books and printed schedules are by no means sufficient for estimating educational progress.

Whether these methods of teaching hygiene through domestic science and nature study are what the profession of medicine would do well to advocate, can only be wisely discussed after review of other existing methods which the committee will present.

APPENDIX D.

DOMESTIC SCIENCE COURSES.

TECHNICAL HIGH SCHOOL, PROVIDENCE, RHODE ISLAND.

Instructor in Domestic Science and Chemistry, Miss Abby L. Marlatt, M. S., (special biology at Brown University, dietetics with Prof. W. O. Atwater, psychology at Clark University; member American Chemical Society; etc.)

Entrance requirements graduation from grammar school or examination.

SCOPE OF COURSE.

Second year: Study of food classes; as water, nitrogenous foods, carbohydrates and fats with reference to the application of laws of physics and chemistry in rendering the food more nearly available for use of man. Each food is studied first in original condition for composition; second, for changes which occur in physical and chemical conditions during cooking and how these affect the digestibility. Practice in the art of cooking is given to illustrate laws and train to better appreciation of value of dainty service in stimulating power to digest. The work includes bread- and cake-making studied as to principles and as to economic value when made in the home.

The hygienic value of cleanliness is part of all instruction.

Typical dietaries are planned, the economic questions being studied along with the hygienic. Visits to markets and practice in purchasing and preparing food for breakfast, luncheon and dinner complete this year's work.

CORRELATED STUDIES.

Physics of light and heat and liquids is a prerequisite for second year work.

General chemistry alternates with the work in the kitchen laboratory so that when pupil is applying heat in discovering the temperatures which coagulate the various proteids as egg, meat juice, etc., she is also testing the foods for their nitrogen and sulphur content to determine if they are capable of building muscle or only of supplying energy to the body in form of heat and work.

The aim in all this work is to develop the reasoning power through appeal to factors which are of vital interest and thus lead to correct understanding of cause and effect in relation to health.

Correct use of the English language and concise thinking is demanded and cultivated in the notebooks which record the daily work. Frequent essays on the subjects studied are part of the work in English composition.

METHODS AND EQUIPMENT.

Individual laboratory work is required. The work is planned as is work in either chemistry or physics. The problem is assigned and each pupil performs the experiment, recording the details and drawing conclusions from data acquired. One and a half hours alternate days are devoted to the work.

The laboratory is equipped with individual work tables fitted with gas. There is a long laboratory table for special chemical work in connection with food.

Third year: Chemistry of foods and of digestion.

Water analyses (city supply and spring waters), analyses of food principles (fat, sugar, starch, proteids, gelatinoids) leading to food analyses. Various foods, as milk, malted foods, peptonized foods, baby foods, and liquid beef extracts, olive oils, butters, are analyzed.

Digestion experiments are made with saliva, and artificial gastric and pancreatic fluids. These principles in connection with review of previous year's work are applied in making modified milk, liquid foods for the adult sick, predigested foods and special diets for typical diseases.

CORRELATED STUDIES.

Physics; study of light and electricity. Electric apparatus is used in part of the cooking practice.

Botany; *the work in botany beginning with the lowest forms as bacteria is very closely correlated with the food work* and with the study of bacteria in the water supply and in milk. The study of yeasts and molds is foundation work in this year's and in the succeeding year's work in sanitation.

The aim is to train the pupil to an appreciation of the importance of a safe food supply if man is to survive modern methods in preservation and transportation of food, and to appreciate that food may be made more easy of digestion when the health is below the normal.

METHODS AND EQUIPMENT.

Individual work as in the second year. Note-books are kept and *scientific research on special problems* is encouraged, supplies of water and other foods being brought from the homes of the pupils.

Fourth year: Sanitation, personal hygiene, care of the sick.

Experimental work in study of food supply, preservatives (in canned meats, vegetables, fruits, and in sauces); purity of foods (adulterations) and methods

of preserving for future consumption as drying and sterilizing. Experiments with temperature and conditions which affect bacterial, yeast and mold growths. Study of insects which affect food and how to prevent their work (partly experimental). *Study of a sanitary house* includes visits to houses in process of erection, study of soils, foundation, floor plans, plumbing devices, finishings, heating and ventilating systems. *Bacteriologic and other experimental work* is done in study of ventilating systems in school buildings. Bacteria in air before and after sweeping and per cent. of CO₂ as test of purity of air are some of the things experimented upon. Each pupil plans and draws to scale a house which according to contractor's estimates shall not exceed \$3,000 in cost of construction. Proper ventilation, heating, and sanitary and aesthetic furnishing are studied for the houses planned, each being an individual problem.

Personal hygiene deals with the care of the body and discusses contagion including social diseases and their relation to the individual and the home.

Care of the sick is lecture work supplemented by lessons at the hospital and practice in emergency bandaging and other first aids to the injured.

CORRELATED STUDIES.

Analytical chemistry.

Drawing—sketches in water color of interiors of houses planned in domestic science work, and design as applied to wall papers, curtains and rugs closely follows the work in the domestic science department.

The aim is to dignify the home by leading the student to see that home life depends upon all the sciences and requires as thorough training as for any profession; that upon the sanitary and moral standard

maintained in the home depends the welfare of the nation; and that therefore there is no higher work than home-building.

As an aid to this *psychology as it applies to the development of the child* is a correlated study.

BROOKLINE (MASS.) HIGH SCHOOL.

Miss Lillie C. Smith, Instructor in Domestic Science and Chemistry (Framingham Normal School, special courses at Boston Institute of Technology, and Harvard University).

The work in Domestic Science¹ is largely an application of other sciences to daily life. Its final aim is, while training the pupil, to give the home its legitimate position among our social institutions, to arouse interest in the familiar processes and environment of home life, and to show that home-making is a worthy occupation for the most gifted.

The food problem is selected for the first year's work, because the average girl is more interested in this department of the work than in any other.

A knowledge of chemistry is essential to even a superficial understanding of every-day processes, and the second year is devoted to this subject and its applications.

The third year is devoted chiefly to a study of the house itself, its construction, its sanitary arrangements and their care, its furnishing and decoration. An excellent opportunity is given, and improved, for correlating the work of this year with that of the art department. Many of the topics, such as ventilation and heating, involve principles of physics, and here also the effort is made to apply work already done in that department, and to bring to students without that training the knowledge of some elementary principles.

The fourth year is largely given to the applications of biology to every-day life. The study of bacteriology leads directly to the theory of disease, and to simple home-nursing and emergency work. A short course in invalid cookery gives opportunity for a review of the principles learned in the first year. The latter part of the year is spent in discussing problems which are those of home-making rather than of housekeeping. Many of these are economic problems as well, and are looked at from the economic as well as the domestic standpoint.

The following topics belong both to Political Economy and to Domestic Science:

The Consumption of Wealth.

Food, in its Relation to Labor Power.

The Housing of the Poor, and its Relation to Good Citizenship.

Municipal Sanitary Regulations.

¹ This outline was published three years ago. Like all scientific courses, it changes yearly, this one changing chiefly in the direction of more study of dietaries and of bacteria.—*Com.*

Expenditure versus Saving.

Domestic Service (as a part of the general labor problem).

The Work of Superintending a Home compared with other Economic Occupations.

Child Labor.

Throughout the course expeditions are made whenever practicable, to broaden the outlook of the students and impress upon their minds the subjects discussed.

The following are some of the topics suggested for theme work in connection with the English department:

The Life and Work of Count Rumford.

The Influence of Pasteur on Modern Science.

Yeast Fermentation in its Relation to Bread-making.

The Manufacture of Flour.

Experiments with Albumen.

Dust.

Bacteria and Butter-making.

The Brookline Water Supply.

The System of Ventilation in the Brookline High School.

An Ideal Room.

FIRST YEAR.

General Subject—Food and its Preparation.

Reference books used:

Parker's Hygiene.

Church's Food.

Goodfellow's Dietetic Value of Bread.

Thompson's Practical Dietetics.

Food Materials and their Adulterations.

American Kitchen Magazine.

Pamphlets by the United States Department of Agriculture.

Atkinson's Science of Nutrition.

Century Articles by Atwater.

(A) The kitchen—its plan, arrangement and care. Cooking apparatus—coal and gas stoves, electric appliances, Aladdin oven. Fuels: kinds, comparative efficiency and cost.

(B) Cooking—canning and preserving. Bread-making. (Note: Both of these subjects involve references to the biology which the class are studying at this time, and include the use of the microscope.) Cooking of breakfast dishes: eggs, meats, cereals, muffins. Serving breakfast.

Dinner dishes: soups, fish, meats, vegetables, desserts. Practice in planning, purchasing and serving a dinner.

Luncheon and tea dishes: salads, simple entrees, baking-powder mixtures. The luncheon basket.

(C) Special study of foods and food materials—classification, function,

cost. Manufacturing processes. Adulterations. Physiology of digestion. Dietaries.

(D) Excursions to market, to chocolate factory, and similar expeditions.

SECOND YEAR.

General subject—Chemistry.

Books of reference:

Chemistry of Cooking and Cleaning, Mrs. Richards.

Dietary Computer, Mrs. Richards.

Chemistry of Cookery, Mattieu Williams.

Chemistry of Daily Life, Lassar-Cohn.

Chemistry, Storer and Lindsay.

Elements of Chemistry, Williams.

Stories of Industry.

(A) General Chemistry—study of the air and its gases. Chemistry of respiration. Water: its composition, distillation, solvent power. Hard and soft water. Hydrogen. Acids, bases, salts. The halogens and their compounds. Sulphur and phosphorus. Carbon and the chemistry of combustion. Fuels and illuminants. Dyeing of cloth. Starch, sugar, albumen, fats. Chemistry of fermentation, and of digestion.

Study of the metals. Action of acids and alkalies upon the common metals and their compounds. Simple qualitative analysis.

(B) Household applications.

(1) Chemistry of cookery. Testing of foods for proteid, starch, sugar. Effect of heat on albumen and starch. Effect of hard and soft water on food. Applications of fermentation. Experiments with baking-powder.

(2) Chemistry of cleaning. Removal of dust and dirt. Solvents for grease. Soap, and soap-making. Removal of spots and stains from fabrics and from wood. Cleaning of metallic surfaces.

(3) Analysis of compounds in use in the household, such as washing-powders, silver polishes, bluing, baking-powder.

THIRD YEAR.

General subject—The House.

Books of reference:

Home Sanitation.

Parkes's Hygiene.

Ventilation and Heating, Billings.

Handbook of Sanitary Information, Tracy.

Building Superintendence, Clark.

The House that Jill Built, Gardner.

The House Beautiful, Gannett.

The Open Fireplace in all Ages, Putnam.

Water Supply, Nichols.

State Board of Health Reports.

Articles from Sanitary Engineer.

Articles and booklets by Waring, Gerhard, etc.

(A) Situation and Surroundings of the House.

Study of soils and building sites. The location from the sanitary, aesthetic and practical standpoints.

(B) Domestic Architecture.

(1) Historical—The evolution of the house. Homes of primitive peoples. Greek and Roman houses. The mediaeval house. Old colonial houses. The house in Japan, Italy, England.

(2) Modern American Houses.

Artistic requirements. Practical requirements. Drawing of house plans.

(C) Sanitation.

Disposal of household waste. Modern plumbing. Study of plumbing in houses in process of construction. Care of plumbing. Use of disinfectants. The physics and physiology of ventilation. Systems of ventilation, especially that of the high school building. Tests for purity of the air.

Heating and lighting. Relative merits and cost of different systems. Applications of physics in steam and hot water heating, electric light, and gas meter.

Water supply. Study of Brookline and Boston supplies. Visits to reservoir and pumping stations. Chemical tests. Microscopic examination. Filtration of water. Consumption of water in household, with study of meter. Stereopticon lectures.

(D) Finishing, furnishing and decoration of the house.

Study of woods. Methods of finishing woodwork and its care. Principles of decoration. Furnishing from an artistic and a sanitary standpoint.

(E) Clothing.

Study of clothing materials. Dress from the standpoint of health and of beauty.

FOURTH YEAR

General subjects—Biology. Economics.

References:

Story of Germ Life, Conn.

Story of the Bacteria, Prudden.

Dust and its Dangers, Prudden.

Water and Ice, Prudden.

Food and the Labor Power of Nations, Nitti.

Domestic Service, Salmon.

A Belated Industry, Addams.

Pamphlets by Dr. S. W. Dike.

(A) Household Biology.

Study of yeast, moulds, and bacteria. Household applications of bacteriology. Dust and its organisms. Bacterial analysis of air, water, milk. Fermentation from the biological standpoint. The theory of disease. Home nursing, including the preparation of food for the sick. Home treatment for simple accidents, such as burns, scalds, cuts, sprains.

(B) Sociological and economic problems of the home.

The function of the home in society. The relation of different members of the family. Household expenditure. Domestic service. The relation of food to labor power. The economic value of home-making as a profession. The ideal home.

APPENDIX E.

EXTRACTS AND DRAWINGS FROM REVIEW PAPERS BY A CLASS
OF 15 PUBLIC SCHOOL CHILDREN, 13 TO 16 YEARS OLD.¹

MUSKEGON HIGH AND HACKLEY MANUAL TRAINING SCHOOL, MUSKEGON,
MICHIGAN.

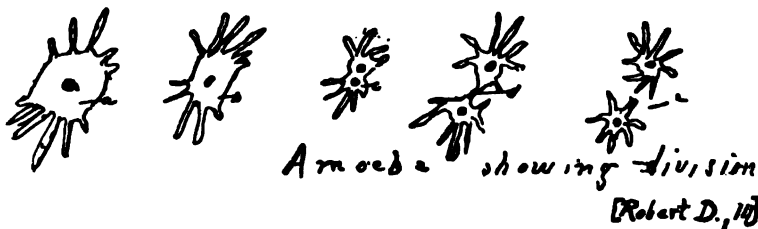
For further explanation of these papers see pp. 438-442.

Reproduction in Animals.

Written by Paul C., age 14.

Birth, growth, reproduction, and death are inevitable in the life of every animal. In all except the very lowest animals, where the body of the parent simply divides and thus forms two new individuals, life has been going on before birth, either inside of the mother's body or in an egg.

Growth and reproduction are the two main objects in the life of every animal, after birth. Reproduction is as important if not more so than growth. Reproduction must take place in the life of an animal if the species or family to which it belongs is to be kept alive. Growth and development are almost as necessary as reproduction, because without growth, animals could not reproduce for they must reach a mature state and also develop to a certain extent. There are exceptions to this rule, however; as, a lizard living in the Rocky Mountains which never reaches the adult state, and, the Amoeba which is fully developed from the time of fission. The Amoeba has no real death as its body lives on in two parts after division.



The Protozoa, the lowest class of animals and consisting of only one cell,

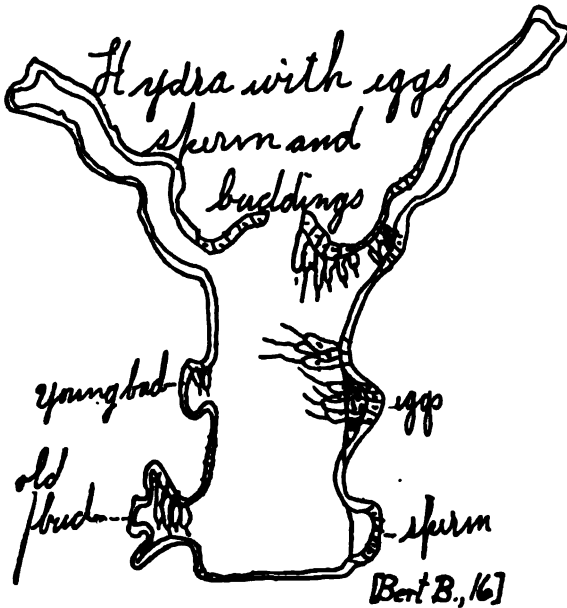
¹ Some pains are taken in printing extracts to reproduce spelling, punctuation and other details by which readers can judge how weighty are the frequently heard objections to introducing science to public school children on the ground that all their time is needed for the "three Rs" as "essentials." Few editors have MSS. calling for less blue penciling even when prepared for publication. The papers are not perfect in these respects, but are good. The handwritings are more legible than the average adult's.—Com.



have two methods of reproduction, the asexual and the sexual. The asexual is the method generally found used, being simply the division of the body into two parts. But once in awhile, after dividing hundreds of times, two individuals will conjugate, that is, come together and exchange nuclear material and then separate. This is called the sexual method.

Between the Protozoa or unicellular animals and the Metazoa or many celled animals come the slightly complex animals. Under this class is the Volvox, an animal consisting of a hollow sphere of cells. This animal has two ways of reproducing, that of spore formation and the sexual method. Some of the cells forming the wall drop into the cavity and develop into spores. Each spore divides and redivides and forms a young Volvox. These young are liberated and develop into adults. Instead of this, some of the cells may develop into eggs and sperm. These then drop into the cavity where they unite and are finally liberated. In this method, however, the eggs and sperm are doubted to be true sex cells.

Eggs and sperm first appear in the Coelenterates, the first phylum of the many celled animals. Many of these animals live on stalks. The lowest



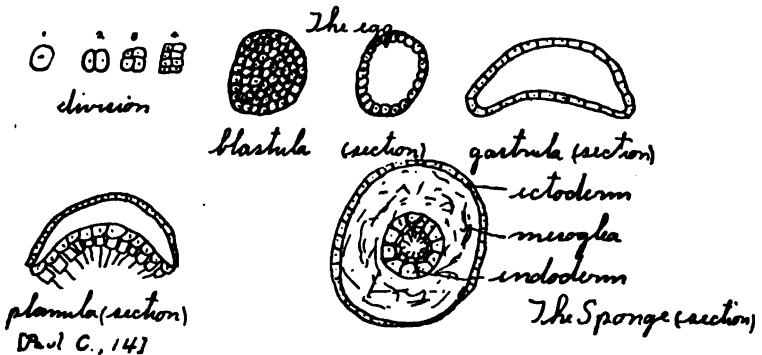
animal in this class is the Hydra, a long, cylindrical, sac-like animal with a

row of tentacles around the mouth. Often two swellings appear on the side, the one above containing the sperm and the lower one, the eggs. [Illustration does not correspond in this last detail.] When the eggs and sperm are ripe, the swellings burst and allow them to go out into the water. Although the animal is a Hermaphrodite, that is, contains both eggs and sperm, the eggs of one individual must be fertilized by the sperm of another. The Hydra also has the asexual method of budding.

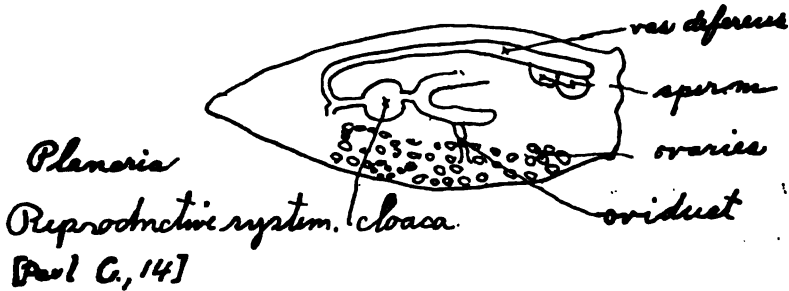
Under the Coelenterates are the Hydrazoa or Hydra-like animals, and consist of a number of animals living on a branched stalk. This colonial form has been formed by budding and each animal remaining attached to the parent stalk. Soon a new branch is developed which is surrounded by a thick membrane. On this branch, but inside the membrane, grow a number of jellyfish-like animals called Medusae, which bear sacs containing either eggs or sperm. The Medusae, when grown, are liberated and float away. When ripe, the eggs or sperm are freed. These unite with others and form new stalked colonies. This is called the alternation of generations, the stalked colonies alternating with the Medusae.

The wall of a sponge is composed of three layers, the outer or ectoderm, the middle or mesoglea, which is composed of a jelly-like substance, and the inner or endoderm. Wandering around in the mesoglea are amoeboid cells resembling the Amoeba. Some of these cells develop into sperm and others into eggs, the sexual method; or, some may develop into spores, the asexual method. The eggs and sperm unite, and the cells thus formed divide and redivide until new sponges are created. The spores also divide, and the young are liberated into the body cavity and then go out of the mouth.

The development of the egg of a sponge is illustrated in the following pictures.



The next phylum of animals is the Worms, and includes the Flatworms, Planaria, etc., and the Roundworms, Trichina, etc. This large phylum has only the sexual method of reproduction. The Planaria is a worm about a quarter of an inch long, and as thick as a sheet of paper. Beneath the



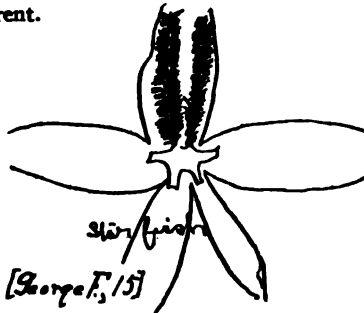
body wall extend two tubes, closed at the head end, but joined at the other. They join into a tube that leads into a small sac. Into this cavity run two other tubes which collect the eggs that are scattered under the body wall. At the sides of the closed ends of the first pair of tubes are two sacs which contain the sperm. When ripe the eggs and sperm drop into the tubes and unite with each other and fall into the body cavity and then through the mouth to form new planaria.

The Roundworms have many different forms of reproduction. In some, the eggs develop in the body and are born alive with the shape of the parent, as in the "Vinegar eel." Others lay them in the water where they grow directly to the adult state. But most of them develop in a roundabout manner. The Trichina lives particularly in the body of a rat. When first admitted into the alimentary canal of its host, it lays millions of eggs, some of which develop into young and bore their way into the muscles of the rat. When some animal eats the rat, the young are freed, become adult and then lay more eggs.

The Echinoderms, starfishes, sea-urchins, sea-lilies, etc., are not Hermaphrodite, one animal alone carrying either eggs or sperm. With but few exceptions, the eggs and sperm are laid directly in the water, where they unite and form young which are carried long distances by the currents and then settle down and become the shape of their parent.

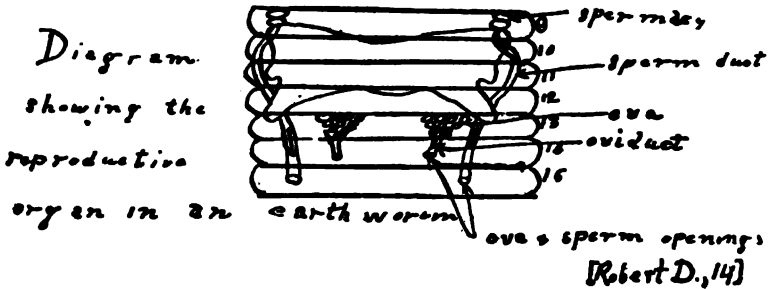
Written by George F., age 15.

In the star fish the reproductive organs are large in breeding time. The sac or ovaries extend the length of the rays; but in the time when they are not breeding they are small. Each sac contains from one hundred to five hundred thousand eggs. The eggs are laid in the water and the sperm is put upon them. The eggs and sperm are not carried in the same individual.



Written by Robert D., age 14 years, 2 months.

In the earth worm, which is a good example of the Annelid or segmented worms, the reproductive system is between the ninth and fifteenth segments. The spermaries are in the segments from ninth to twelfth; the ovaries in the thirteenth segment. The sperm pass down tubes to the fifteenth segment,



and the ova pass down two others to the fourteenth segment. Here they are fertilized by another worm, and then a sort of sheath formed from a secretion from the clitellum passes over the body and gathers up the eggs and sperm and passes off the body and is rolled into a ball forming an egg case.

Written by Paul C., age 14.

The large phylum of Arthropoda includes the Crustacea, crabs, crayfishes, etc., the Insecta, moths, ants, etc., the Spiders, and two other classes. In the lower classes of Crustacea, the male is usually small. The female carries brood-pouches in which eggs are placed for development. The young are born in the form of minute larvae which do not in the least resemble their parents. After many moults they become adult. The Crustacea are dioecious, that is, the eggs or sperm are carried in different individuals. In the higher classes part of the development takes place while attached to the parent and thus when born somewhat resemble their parents. The lobster carries its eggs for about a year before hatching. When hatched, the young swim away, undergo four or five moults and then settle to the bottom. They then resemble their parents and only need to grow before becoming adult.

The Insecta lay their eggs either in the water or in the ground, on leaves or in wood. Many undergo a metamorphosis and again many do not. A typical example of those that do not undergo a metamorphosis is the grasshopper. The eggs of the grasshopper are laid in bunches about half an inch underground. When hatched the grasshopper plainly resembles its parent except in size and the lack of wings. It eats and grows rapidly for a few days and then moults the covering around it, called chitin. The four wings can now be seen in a rudimentary state. After the fifth and last moult the grasshopper is a full-grown and adult insect. The butterfly is a type of the insects that do undergo a metamorphosis. The female lays its eggs on the

edge of a milkweed or other support. When hatched the larva is a worm like animal with eight pair of legs, called a caterpillar. It undergoes four moults at the end of which it is in the form of a pupa or chrysalis, greatly contracted, and with a thick, hard, outer chitinous wall, hanging to its support. It hangs here from two days to a few weeks, when the chrysalis splits and the beautiful adult animal emerges.

The Molluscs include the clams, oysters, mussels, etc. The oysters and other inactive molluscs shed their eggs from two to forty million, directly into the water and let them take their chance of developing. Those that develop follow the first stages of the sponge in development until it becomes a free swimming mollusc, after which it settles down in the inactive adult state. The development of the freshwater clam is, however, somewhat different. The eggs as soon as they are laid are placed in the outer gill plate, where they undergo the first stages of development and are in the form of minute young with a toothed bivalve shell. These are then freed and swim about in the water until they are caught in the fins or gills of a passing fish. They sink into the body of the fish and go through other transformations and finally break away and fall to the bottom.

SUMMARY OF REPRODUCTION IN INVERTEBRATE ANIMALS.

The methods of reproduction in the invertebrates are very simple, being, in the simplest forms, division or budding; next, those that have the power of budding and also have eggs and sperm, though in the same individual, and those that possess either eggs or sperm. The organs in the higher forms are simple as compared with those of the vertebrates.

The development of the lowest invertebrates is not of much importance as it consists principally of growth. As we go higher in the scale of life, however, the development becomes much more complex and it has reached a high stage in the molluscs and arthropods.

In the lower classes the parents do not take care of their young but simply allow them to be carried about by wind or water or to be caught and eaten by other animals. But in the higher classes, such as the Insects, we find that some parents do care for their young. The ants have separate rooms laid out in their nests, for the eggs. They carry these outside and watch them to see that nothing disturbs them, and if danger threatens, they instantly carry them back to the nest. After hatching they feed and protect their young until they are strong enough to take care of themselves. The bees also take care of their young, feeding and protecting them.

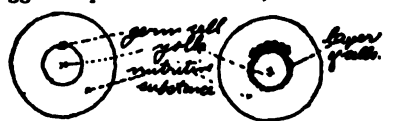
Written by Minnie C., age 16.

THE VERTEBRATES.

In the fishes, as the shark, there are two ovaries, varying in size. The oviducts are separate from the ovaries, and near the anterior end they come closely together and unite. The rest of the oviduct is narrow, except where

the shell glands are located. The oviduct communicates with the ureters and opens into the cloaca.

In the male fish the spermaries are elongated and are connected with ducts which pass into the vas deferens which is dilated near its opening to form a little sac. The sperm is deposited in the body of the female and after the egg and sperm have united, it leaves the body. The germ cell begins to divide



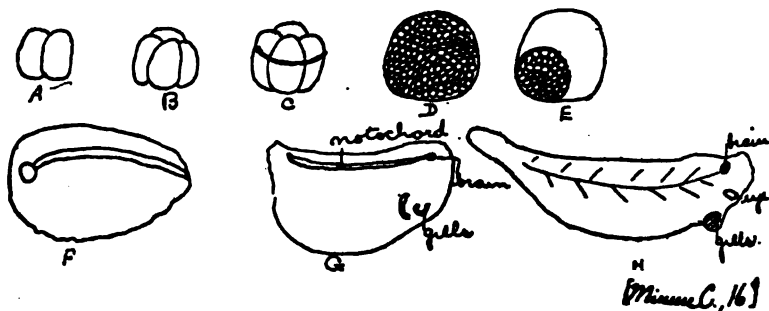
[Clarance M. P., 11]

and continues doing so until a blastoderm is formed which covers the rest of the egg. And now two layers of cells are formed, which, near one side begin to fold in, and an ectoderm, mesoderm and endoderm are formed.

After a little further development the ectoderm gives rise to the skin, nervous system, and the lining membrane of the mouth gills and cloaca; the mesoderm gives rise to the muscles of the body; and the endoderm forms all the internal organs.

Amphibian.—The male frog's reproductive organs are white bodies lying very near the kidneys. A tube passes from each and becomes connected with the urinary tubules which carry the sperm from the body.

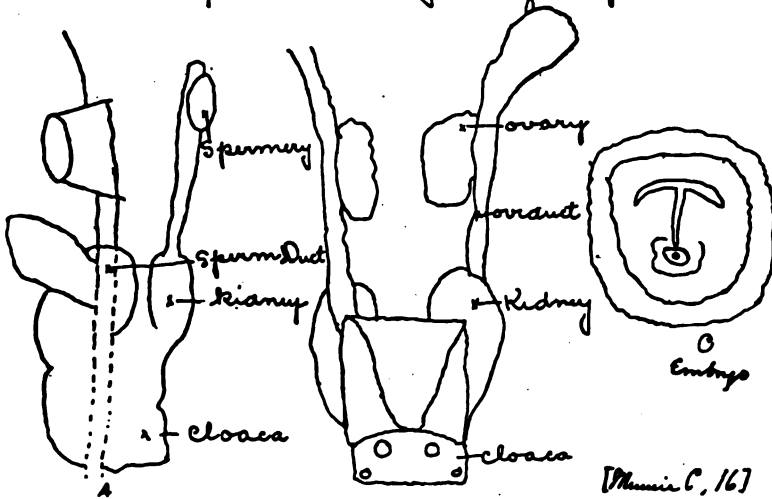
The ovaries are large sacs, and the ovi are black on one side and white on the other. Attached to the ovaries are large convoluted oviducts, which lead to the cloaca where the eggs are deposited. The female lays the eggs, then the male lays the sperm over them, and the egg begins to divide in this way:



Reptiles.—In a female reptile, there is a large ovary on each side of the body with a large tube leading from each. The kidney are located very near the cloaca, and over these kidneys the oviduct passes, opening into the cloaca. In the male a spermary is located on each side of the body, and a sperm duct leads from it which also passes over the kidneys, and enters the cloaca, where

it leaves the body of the male and enters that of the female. The egg and sperm unite and as it passes down the oviduct, a thick leathery covering is

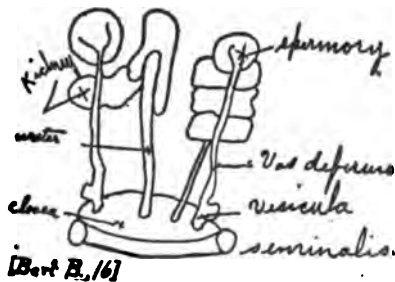
Reproductive Organs of Reptiles.



deposited over the egg, and it now leaves the body to undergo its development, unprotected.

Birds.—In the male bird there is a spermary located on each side of the body, very near the kidneys, with a tube called the vas deferens, leading to the cloaca along side the ureter, which carries the waste from the kidneys.

The female bird has but one ovary which is located near the kidney. A large number of eggs are formed, which, one by one drop into the oviduct—a thick large tube. After



the sperm has been deposited in the body of the female and the egg and sperm have united, the egg begins to divide. The shell glands are very near the cloaca and as the egg passes these glands, a shell is placed over

it. It passes into the cloaca and leaves the body, where, from two to four



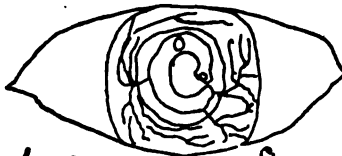
The female organs of a bird are much higher than those of a snake. The end of the oviduct is enlarged, so that the egg can

Female organs of a bird readily pass into it. The oviduct itself is very much folded and contains a shell gland which secretes a lime over the eggs. The oviduct is long and leads into the cloaca.

[Part B, 16]

weeks it is cared for and protected by the parent until the egg has hatched.

Development of Bird's Egg.—The sperm bores its way into the egg cell, the two unite and begin to divide. The whole egg does not divide, only the germ cell, so the blastula is formed in the upper part of the egg. A gastrula is also formed and then the little embryo begins to develop very quickly, being nourished the while by tiny blood vessels which are connected with the yolk of the egg. When it is fully developed, it pecks the shell and soon emerges a little



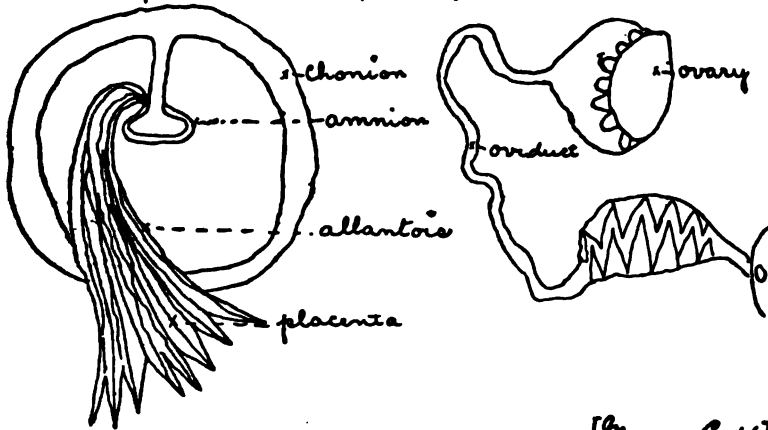
Embryo
[Minnie C., 16]

bird.

Mammals.—In the rabbit the ovary is large and contains a number of eggs. When an egg becomes ripe it passes into the oviduct, which at first is large and convoluted and then becomes smaller where the sperm unites with the egg. It then passes down a little farther, where, the oviduct becomes much larger and wider, and the walls are made of folds of mucous

membrane. The egg here begins to develop. The whole egg divides into many parts, until a little embryo is formed, which is nourished by blood vessels of the mother and breathes by means of the mother's heart beats.

Reproductive Organs of the Rabbit



[Mammia C, 16]

Development.—Projections come out from the embryo which is suspended in a membrane, and another membrane is around this. The projections, which come from the first envelop or membrane, are formed so as to fit into the folds of the last part of the oviduct. All the young of mammals are born alive except the duckmole.

GENERAL SUMMARY IN VERTEBRATES.

Beginning with the fishes we note a much higher development than we have yet studied. The vertebrates all have a spinal column and highly developed nervous and reproductive systems. In the lower forms as the Fishes, Amphibians and Reptiles, the eggs are laid by the Fishes and Amphibia in the water, and the Reptiles in the sand, where they are left unprotected and uncared for, to undergo their development. But in Birds and Mammals, we notice a very devoted care by the parents for the young. When the birds lay their eggs they protect them until hatched, and then they watch and care for the little birds until they are able to fly. In the mammals also, the young are carefully guarded by the parents.

In all the classes of Vertebrates, except the Amphibia and mammals, the egg does not divide the same way as we studied in the invertebrates. Instead of the whole egg dividing, only the germinal cell divides and forms the blastoderm which covers the rest of the egg. In the Mammals and Amphibia the whole egg divides.

DISCUSSION.

W. R. Mitchell, Department of Biology, Hyde Park High School, Chicago.

A few days ago I was called upon and asked what we were doing in Chicago in reference to this topic. I can assure you that we are interested in this problem for we are workers with you for the promotion of health.

I wish to express my appreciation of this report for its broad view, and I also wish to point out a few things which I presume the speaker wishes me to.

The question is, as you have perhaps studied in this and other cities, whether we have any degree of teaching upon this subject. I will tell you frankly that a few years ago there was nothing but book-teaching outside the courses of biology. Our Chicago high school teachers of biology take up the careful study of types of all groups of plants and animals in which we use the various statements with reference to nutrition and reproduction. There was a time when some of the parents said that we had no right to teach such things, and we were criticized for it, but the Board of Education sustained the biology courses.

In the Chicago high schools at the present time there is opportunity for a year's work in botany and a year's work in zoology. Each course is elective, although I can assure you the students are in earnest and are interested in their work. Former pupils often tell me how much they appreciate the things which they learned in their studies of biology. We must continue our courses in biology, which includes zoology—from amoeba to man, and botany—from the simplest plant to the tree, and expect each student to catch the inspiration for noblest living.

Since biology is elective, there are large numbers of "physiology" teachers who have never taken a single course in this subject. This is wrong and if the medical profession can help to attend to this we will appreciate it.

The normal schools are usually made up of a student body that comes from high schools. We will therefore never have this teaching done properly in the grades to future generations unless it is taken up in the high school courses in biology.

No young person can now go to the Chicago Normal School unless they have two laboratory sciences, one physical and one biological.

I thank you most heartily for this opportunity to speak and shall be glad to answer any questions in regard to this phase of education.

Mrs. Winfield S. Hall, special teacher of physiology in the Berwyn Schools, Berwyn, Ill.

Feeling that there must be some reason for the criticism passed upon physiology as taught in the public schools, and desiring to find just what that reason was, I went into the Berwyn schools as special teacher of physiology and solved, to my own satisfaction, the problem.

The regular teachers, who are of an exceptionally high grade, did not wish to teach the subject because they felt illy prepared. The pupils did not wish to listen to the subject because they were tired of it. In the seventh and eighth grades, at the bare mention of the word physiology, the whole class assumed an air of utter indifference, if not disgust. When, however, each child was given a bean and a kernel of corn and asked to examine them and was then given other bean and corn seeds that had been soaked and were asked to note the difference, the whole attitude of the class changed. After four or five lessons on the seed and the young plants grown from them, during which time they had studied plant physiology—had learned how the plant eats and breathes; what it eats and breathes, and had learned about oxidation and its relation to heat and energy, as well as the interrelation between plants and animals, the pupils had a new and broader conception of physiology and an intense interest in the subject. This interest increased with the introduction of experiments to find the constituents of the seed and of the foods used in the nourishment of the human body.

Physiology was given its place in biology and its relation to botany, zoology and domestic science was made apparent. From thinking they had had enough physiology, the pupils began to see the largeness of that subject and to desire more.

The lower forms of plant and animal life were used in teaching cell structure, and in this way we developed the relation between the individual and the community, and the importance of physiology in relation to sociology.

These lessons on the cell, usually considered difficult, were given necessarily without other demonstration than by blackboard figures, yet they held the interest even better than the work of digestion and circulation with experiments.

When the pupils were one day allowed to choose something for an afternoon treat, they unanimously chose an extra hour of physiology.

The subject of narcotics was dealt with very thoroughly, but was presented where it belonged pedagogically. The importance of good food and drink was emphasized, after which it was only necessary to show the physiological action and effect of narcotics. The subject of domestic economy gave an excellent opportunity for showing the cost of the narcotic habit and made a lasting impression.

With younger pupils the physiology was correlated with geography: foods, where grown and how transported; with domestic economy, food values and cost, right choice and preparation; with arithmetic, by giving little problems of buying food at certain prices, and of computing the cost per year of a given number of cigarettes daily at a given price, or the number of yards of muslin that could be bought for the price on one glass of beer a day for a given number of weeks. It was related to zoology by showing the similarity of structure between man and the lower animals.

The mothers of the pupils said that the children discussed physiology at the

evening dinner every day during the course of study, and many of these mothers had made radical changes in the home régime because of the demand from the pupils. They said too, that the children were more contented with what was provided after they had learned the cost of living. Some of the fathers were taken in hand also because of certain habits which they indulged.

Why is there criticism regarding the teaching of physiology? Not because it lacks in interest, not because it fails to influence pupils, not because of alleged untruth of statements in some of the text-books, but because (1) The teachers have not dealt with the subject pedagogically as they treat other subjects. (2) Pupils have been given human physiology without its relation to other sciences. (3) The subject of narcotics has been brought into the work in season and out, without regard to its logical bearing upon the subject. (4) The same topics have been presented in fourth grade, then in fifth and sixth and later in seventh and eighth grades until the whole subject became distasteful. When teachers have a better preparation in physiology all the trouble will vanish and we shall see in the stronger bodies, clearer minds and cleaner lives the benefit of the teaching of this subject in the public schools.

Dr. Leartus Connor, of Detroit, Mich.

The paper read and the discussion by Dr. Putman and Mrs. Hall are very encouraging, in that they indicate that agencies are at work making the training of young children better adapted to the making of good citizens.

Thus the training in house work, makes possible better homes—homes in which kitchen work is honored. Such honor will surely transform the art of cooking, as the training schools for nurses has changed the art of nursing. Now plenty of men choose their wives from the nurses; may the time soon come when the honoring of the cooking profession, will induce them to select wives from the cooking calling.

Mrs. Hall has shown us how even very small children may be profitably taught of the reproductive life in the public schools. Such practical knowledge imparted by intelligent clean teachers, is wholesome, and will put out of business the stock in trade of the licentious. Only by such teaching can the tide of syphilis, gonorrhea, etc., be set back from its malign influences on all classes, races, sexes. To be foretaught is to be forearmed.

Dr. V. J. Cohenour, of Joliet, Ill.

I congratulate the committee upon this excellent report and hope the chairman may be able to inspect the public schools of our city, the school buildings and the school-yards. Many of the methods of teaching and especially of nature study are commendable. Teachers encourage the pupils to study shrubs, flowers and ferns. Each pupil may receive seeds or bulbs every spring to plant, or sow in the yard at home, or at school as he or she chooses. Instruction as to the best methods of growing and caring for flowers is given, also cards of printed instruction as to time of planting, etc. Many of the ward school-yards are models for beautiful lawns, shrubs and flower-

beds. Professor Allison superintendent of schools, has noticed that the conduct of the pupil is greatly improved since this work began about three years ago. Our city park contains a large and excellent collection of ferns to which many of the classes are taken for study. In a symposium on "Beautification of City Lawns" at the Steel Works Club last week, this subject was discussed with special reference to planting bulbs, wild shrubs, and flowers in lawns and yards. The correlating of biology and botany in the grade schools would certainly prove helpful. Practical hygiene could be taught in all grades above the fourth by some competent person. In this way parents might be influenced to keep their homes in a more sanitary condition. Our duty as physicians is clear. We should see that correct and up-to-date text-books are used; also that qualified teachers are engaged to give instruction in hygiene biology, physiology, botany and the allied sciences.

OBSERVATIONS IN PASSING.

Will all colleges—literary and scientific as well as medical—favor us by regularly sending their catalogues, announcements, annual reports, etc., to the secretary of the American Academy of Medicine, Easton, Pa.? They will be helpful in the continuation of the study of the proper education of the physician by the committee whose preliminary report is published in this number.

MATTERS EDUCATIONAL.

If the Observer may be permitted to assume the rôle of "Old Probs" in matters educational, he would report a slowly rising barometer, a steady wind from that point of the compass which indicates clear and bracing weather. The area of clear weather is a large one and the storms, at most, are local.

Hamlet's sage words to his mother,

Assume a virtue if you have it not,
have been heard by many a medical college, for much of the earlier virtue of an advanced standard of medical education in the annual announcements was found to be but an assumed virtue when put to the test. It is fortunate that sham soon lengthens the vowel and becomes shame, and the average American dislikes shame for himself as much as he detests sham in some one else.

It is not necessary to attempt to explain this condition, nor the causes leading to its bettering; only the sinless should throw stones. That such a condition did exist, and to an extent does still exist, is known by all who are familiar with the facts. This is evidenced by many of the cast-iron requirements in the medical practice acts; requirements which, in the end, will hinder medical education, not foster it. However, the sun is burning up the mist and the wind is driving away the fog. Thanks to the courage of the pioneer corps, the way is opened and a majority of the medical teachers are rallying loyally around the standard this time with true virtue.

The above homily was suggested by reading in the *Columbus Medical Journal* for February an account of the organization of the "Ohio Association of Medical Teachers" at Columbus on December 26th last. This association is for mutual counsel by dis-

cussing the various problems relating to medical education. It is to be a member of the allied Educational Association of Ohio, and this will be in sympathetic touch with the other grades of teaching.

An instructor in mechanical drawing in one of our prominent technical schools was in the habit of urging his pupils, in order to get a clear idea of the projection of any design, to place the view-point close to, and on a level with, the object to secure a "toad's eye view," as well as to go aloft and get a bird's eye view. The great error in the prospective drawings of a medical educational scheme by our medical teachers has been that the point of view was that of the toad. This membership in the larger educational system will furnish the bird's eye view.

The Bulletin congratulates the Ohio Association; may it receive the enthusiastic cooperation of every one eligible to its membership! It will be helpful if imitators are found and similar associations be formed in other states.

The Association of American Medical Colleges, which held its annual session in Pittsburg on March the 19th, exhibited the same tendency of a broader outlook in the preparation of its program. The discussion, and more especially the proposed legislation, was somewhat disappointing. The standard was carried forward, but instead of rallying around it, there was a demand to bring the flag back to the ranks. Under existing conditions there is nothing else that can be done by the medical colleges than is proposed, unless there is courage enough to do the right and brave the consequences. Briefly, the conditions are: Some of the states require four years' residence in a medical school as one of the conditions for licensure. No objection can be taken to this; if the legislature of any state thinks the safety of its people requires four years' residence in addition to, or regardless of, the other qualifications, it has that right, and any one desiring to practise in these states should comply with this requirement. But, and here is the tyranny of it, the boards to whom the execution of the law is entrusted, say to the colleges: "If you permit any student to graduate in your college unless he has had four years' residence in a medical school, we will not accept any of your stu-

dents, whether they individually have complied with our requirements or not." The regents of the University of New York have been working for years on a plan which will enable an intending medical student to take the pure science studies of the medical course apart from the medical college, and be permitted to come up for his degree after three years' residence in a medical school. This plan may be perfected in the near future. Suppose then a student complies with all the regulations of the regents and graduates at Columbia after a three years' residence in the medical department. He passes his state examination, settles and remains in New York. Because Columbia has done this, these Dictators to Medical Colleges—for no other name will apply—say to Columbia: "None of your graduates can come before our board for examination, whether or not they have complied with our requirements." The surprising thing is that this policy, so foreign to our American ideas, is defended by men who are earnest and anxious for a true elevation of the medical profession.

One of the principal questions discussed by the College Association was the possibility of recognizing the pure science studies of the medical course if taken outside the course itself, and giving the student an opportunity to come up for his degree after three years of college residence. The discussion showed that the members of the Association were divided into three parties. One recognized the value of the training that is apt to accompany the preliminary instruction in physics, chemistry and biology, and wished to foster it as much as possible. There was no desire to lower the bars in any way, but to treat such student upon his own ability. A second party was apprehensive that such an arrangement would permit abuses and allow medical schools to graduate under-standard men; in some cases the remarks seemed almost uttering the petition: "Lead us not into temptation." While the third party was composed of those whose purpose was purely selfish, "we are here to look after the interest of our schools; anything that will bring us in conflict with state boards, anything that will diminish our fees by fewer years of residence, must not be considered."

As previously intimated, the proposed legislation is to comply with the Procrustian-bed-plan of the state regulations and make all to comply with the dead-level requirement, after the fashion of trades-unions. The Association is helpless and can do no other—at the same time it would have been pleasant to have seen them rise above the mist, and to have stated their belief in a principle and the reason why they must be bound by a policy.

However, the world moves, notwithstanding a Galileo recants, and the process of coordinating our educational institutions will go on, and the day come when the present shackles will be broken and the requirements to practise medicine will be applied to the individual and not to a mass.

There are other questions involved in the discussion of this subject which can not be mentioned in a brief review like this. Because of this there is the risk of stating half-truths, or being accused of so doing. The meeting of the College Association clearly showed that the educational methods for those with *minimum* requirements had advanced, and there were several plans whereby greater advantages are given than the minimum requirements. While there is opportunity for growth, there has been no cessation of development.

A BUG-A-BOO.

We are in receipt of a pamphlet entitled the "Legislative Schemes of the American Medical Association—a Conspiracy to Establish a Physicians' Trust," with this slip pasted on the cover:

To the Editor:

The disclosures in the attached pamphlet are, we think, important and timely, as showing the origin and design of the apparently spontaneous movement against the proprietary medicines and drug trade in general, particularly as manifested in the various drug bills now before Congress and the State Legislatures.

NATIONAL DRUGGIST.

Were one inclined to be facetious it might be suggested that these Congressional and Legislative Drug Bills are to diminish the drug bills of a long-suffering people who have acquired the habit of swilling medicine concoctions of unknown composition.

A great deal could be said in a review of this pamphlet—it ex-

presses some truths, not intended, it is true, but true nevertheless, that would furnish a text for a homily. But space only permits to quote one paragraph to show the bug-a-boo set up by the pamphlet and in all probability sent broadcast over the country to those papers whose contracts for extensive advertising depend upon throttling any legislation that will effect the sale of secret remedies.

From the facts as we have detailed them, it can be seen that this crusade is not the result of a great national uprising, as the uninformed might imagine, and as it is sought to make the legislatures believe, but that it all proceeds from the clique of political doctors who, for the time being, are in control of the great American Medical Association. Now, for whose benefit is this coterie of physicians laboring so earnestly and with such holy zeal? Of course, if we are to believe their own professions, it is all for the benefit of the "dear people," and the American Medical Association is purely a benevolent institution, organized and maintained solely for philanthropic purposes, and without hope of reward or selfish advantage to the association itself, its individual members, or to the officials who are at present directing its activities. But the average legislator will understand, if the average citizen does not, that behind most special legislation, however glozed over it may be with humanitarian pretensions, the controlling motive is pecuniary gain or greed of power. And we do not believe that Congress or any State Legislature can be hoodwinked and deceived by the false play of the agents of this Great Medical Trust into passing laws whose purpose and design is to crush out and destroy all competition in the healing of the sick, and to give to its members a complete monopoly of the whole field of curative therapeutics, so that it will be impossible for a man to get a simple remedy for a cold, headache or other minor ailment without first hunting up a member of the American Medical Association and paying him a prescription fee.

Can anything be richer! Do you not see the little darling hurrying upstairs to bed, fearsome because of this gruesome tale by the silly nurse? One fears to begin to comment where so much is vulnerable, but just a page or two before the quotation, the pamphlet states that the American Medical Association now numbers about 20,000 of the 150,000 physicians in the country. Yet poor little "dear public," if you cannot purchase your acetan-alid headache powder unless you know it contains that drug, nor put your babe to sleep with a harmless potion containing an unknown quantity of opium, unless that fact is stated on the label, neither can you select a single one of the 130,000 physicians, not members of the American Medical Association; you can only

purchase a prescription from one of the elect 20,000! But, and the question is pertinent, what is the true spirit activating the *National Druggist* publishing this pamphlet? Is it purely altruistic or does it accuse the American Medical Association of a motive because a personal acquaintance with that motive, rather an enslavement to it, will not permit it to recognize a purer motive in any one else?

LITERATURE NOTES.

THE WORLD'S ANATOMISTS. BY G. W. H. KEMPER, M.D., with eleven illustrations, nine of which are portraits. P. Blakiston's Son & Company. Paper, 79 pp. Price, 50 cents.

This little book contains concise biographies of anatomic masters from 300 B. C. to the present time, whose names have adorned the literature of the medical profession. It is arranged alphabetically and makes a very convenient work of reference for the persons mentioned. An inexpensive work of this character is of especial value, as it will be more apt to be purchased by those who would hesitate purchasing books of greater price, and yet who need the stimulus of the knowledge of the lives of the masters in our profession.

WHO'S WHO IN AMERICA. A Biographical Dictionary of Notable Living Men and Women in the United States, 1906-1907. Chicago: A. N. Marquis & Company. pp. 2080. Price, \$3.50.

This fourth edition of a dictionary of celebrities proves to be as useful as its predecessors, as it usually gives enough information to enable one to know something of the personality of the individual about whom the world is talking. How many names among the thousands contained are never sought out can not be estimated, nor would it be fair to judge except by comparing the experience of many. A name earnestly sought for by a few may never come to the notice of many, yet it should be included in the list for the sake of the few. As far as one can judge, the editors have made a discriminating selection. It does not savor of the "pay for your biography" schemes so prevalent in the country.

The editor gives some vital statistics of the person whose biographies are included in the volume—16,216 in all. 13,932 are native and 1,704 are foreign-born, while 8 were born at sea and

the birthplace of 572 is not given. This gives a percentage of 89.1 for the home-made product, a very good showing. Of the 10.9 per cent. of those of foreign birth nearly 57 per cent. were born in countries now under the British flag. Horace Greeley's famous exhortation seems to have been obeyed, for 999 more natives of New England are to be found in the volume than the entire number of those who now reside in New England whether native to it or not. There is, however, a counter-current and while many go West, a number from the West turn their faces towards the sun rising because the metropolis of the nation is at its Eastern border and its capital not far removed from it, New York and Washington claiming many residents who were born in the Western States. But the greatest relative gain over the last edition, both of residents only and natives, is in California.

The *New York State Journal of Medicine*, for March, 1906, is the "Centennial Number," publishing the excellent address delivered at the recent commemoration of the Medical Society of the State of New York. It also begins a series of articles on the history of the society by Dr. James J. Walsh, which can not fail to be of value and interest. This number of the journal promises well for the usefulness of the organ of the now united profession of the Empire State.

Ginn and Company, of Boston, publish for the International Union the "A League of Peace," delivered by Andrew Carnegie as his rectorial address to the students of St. Andrews University, on October 17, 1905. The distinguished master worker and philanthropist selected the theme of arbitration in international differences. He evidences a wide reading not only in the history of affairs but in classic and historic literature as well. The Union is anxious for a wide distribution of the pamphlet, and it is issued at the nominal price of ten cents a copy.

BULLETIN

OF THE

American Academy of Medicine.

VOL. VII.

ISSUED JUNE, 1906.

No. 7.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or address published in the BULLETIN.

HANDBOOK OF THE AMERICAN ACADEMY OF MEDICINE.

1905-1906.

INTRODUCTION.

On September 6, 1876, at the invitation of Dr. Robert Lowry Sibbett, of Carlisle, Pa., Drs. Traill Green, of Easton, Pa.; Peter D. Keyser, of Philadelphia; E. H. M. Sell, of New York City; R. L. Sibbett, of Carlisle, Pa.; Lewis H. Steiner, of Frederic, Md.; William S. Stewart, of Philadelphia; and R. Stansbury Sutton, of Pittsburg, met to consider the advisability of organizing a society of protest against the low minimum standard of medical education at that time. After deliberation an organization was effected. At that time there was absolutely no legal requirements in force relating to the practice of medicine. The man who could get patients became thereby a doctor; the medical school could issue diplomas almost at will, if it had a charter, and charters were not difficult to obtain. Whatever hope there might be in future development, and it is doubtful if their wildest flights of imagination pictured the advances that have been made in 30 years, whatever possibilities the future might contain, there was but one way open for actual progress at that time. They seized the opportunity and organized a society whose members must have had the scholastic opportunity to premise a training fairly adequate

for the practice of medicine. There should be a preliminary education (not a single medical college in the land demanded any evidence of a preliminary education for matriculation) and it seized upon the only standard available—the first degree; there must be a medical education, and in the days when two courses of lectures, which frequently were taken within the limits of a calendar year, gave a diploma, the Academy demanded *three years* medical study.

During the year it carried on an active propaganda, holding its second meeting in New York on September 11 and 12, 1877. At this time it formulated its object to be:

I. To bring those who are an alumni of classical or scientific and of medical schools into closer relation with each other.

II. To encourage young men to pursue regular courses of study in classical and scientific institutions before entering upon the study of medicine.

III. To extend the bounds of medical science; to elevate the profession, to relieve human suffering, and to prevent disease.

To secure its first object, it limited its membership to the college-bred. How happy these closer relations have been can be witnessed best by those who have availed themselves of the opportunities of the annual meetings with any degree of frequency.

As to the second specified object, whether *post hoc* or *propter hoc*, the renaissance of medical education in the United States began soon after the organization of the Academy.

The formulation of the third object is evidently an anchor thrown to windward. Should the Academy survive its infancy, what would be its purpose in life? Evidently within the vast domain outlined in this paragraph. Very early in its history the Academy saw that its efforts to extend the bounds of medical science, relieve human suffering and prevent disease should be exerted in securing more highly educated physicians; and a little later that the elevation of the profession can be accomplished only by knowing its level, its environment, the forces working for and against its betterment, both without and within; in other words, the investigation of medico-social questions of the world.

It has found a useful field of activity included in these three

statements formulated at the beginning. The friendly relation of the college-bred, the example of association of a thousand physicians who think enough of the college course to make it a requirement for membership, influencing pre-medical students in taking a more thorough preliminary course, and the study of social medicine, which, like all questions of sociology, seems especially attractive to those who have had the opportunity of the breadth of culture of the college.

It is for others to estimate the usefulness of the Academy and the value of its transactions. This introduction is not for boasting, but to give a simple statement of fact as a reply to an oft-repeated question regarding the Academy, its origin and its aim.

The Secretary wishes to acknowledge the invaluable assistance he has received from Dr. S. C. Stanton, the Assistant Secretary, in the preparation of the list of the Fellows. Dr. Stanton examined the list with care comparing the information given with the data at his disposal in the office of the *Journal of the American Medical Association*, noting all differences. These were afterwards investigated and a number of errors were discovered, that otherwise would have been overlooked. There remain a few names on the list that have not been verified recently. Please report any errors to the Secretary. One reason why this inaccuracy occurs is, that for a series of years the financial policy of the Academy was not to impose annual dues. Hence, for a number, there is no necessity for writing to the Secretary.

PLACES AND TIMES OF MEETINGS.

1. 1876.—September 6, Philadelphia.
2. 1877.—September 11, 12, New York.
3. 1878.—September 17, 18, Easton, Pa.
4. 1879.—September 16, 17, New York.
5. 1880.—September 28, 29, Providence, R. I.
6. 1881.—September 20, 21, New York.
7. 1882.—October 26, 27, Philadelphia.
8. 1883.—October 9, 10, New York.

9. 1884.—October 28, 29, Baltimore.
10. 1885.—October 28, 29, New York.
11. 1886.—October 12, 13, Pittsburg.
12. 1887.—September 3, Washington.
13. 1888.—November 13, 14, New York.
14. 1889.—November 13, 14, Chicago.
15. 1890.—December 2, 3, Philadelphia.
16. 1891.—May 2, 4, Washington.
17. 1892.—June 4, 6, Detroit.
18. 1893.—June 3, 5, Milwaukee, Wis.
19. 1894.—August 29, 30, Jefferson, N. H.
20. 1895.—May 4, 6, Baltimore.
21. 1896.—May 2, 4, Atlanta.
22. 1897.—May 29, 31, Philadelphia.
23. 1898.—June 4, 6, Denver.
24. 1899.—June 3, 5, Columbus, O.
25. 1900.—June 2, 4, Atlantic City, N. J.
26. 1901.—June 1, 3, St. Paul, Minn.
27. 1902.—June 7, 9, Saratoga Springs, N. Y.
28. 1903.—May 11, 12, Washington.
29. 1904.—June 4, 6, Atlantic City, N. J.
30. 1905.—November 9, 10, Chicago.
31. 1906.—June 2, 4, Boston.

PRESIDENTS.

1876	*Traill Green.....	Easton, Pa.
1877	*Traill Green.....	Easton, Pa.
1878	*Frank H. Hamilton.....	New York.
1879	*Lewis H. Steiner.....	Baltimore.
1880	*F. D. Lente.....	New York.
1881	*E. T. Caswell.....	Providence.
1882	*Traill Green.....	Easton, Pa.
1883	Henry O. Marcy.....	Boston.
1884	Benjamin Lee.....	Philadelphia.
1885	*Albert L. Gihon.....	U. S. N.
1886	*R. Stanbury Sutton.....	Pittsburg.
1887	*L. P. Bush.....	Wilmington, Del.
1888	F. H. Gerrish.....	Portland, Me.
1889	Leartus Connor.....	Detroit.
1890	*S. J. Jones.....	Chicago.
1891	*Theophilus Parvin.....	Philadelphia.
1892	P. S. Conner.....	Cincinnati.

* Deceased.

1893	J. E. Emerson.....	Detroit.
1894	George M. Gould.....	Philadelphia
1895	*J. McFadden Gaston.....	Atlanta.
1896	Henry M. Hurd.....	Baltimore.
1897	J. C. Wilson.....	Philadelphia.
1898	L. Duncan Bulkley.....	New York.
1899	Edward Jackson.....	Denver.
1900	G. Hudson-Makuen.....	Philadelphia.
1901	S. D. Risley.....	Philadelphia.
1902	V. C. Vaughan.....	Ann Arbor, Mich.
1903	Charles McIntire.....	Easton, Pa.
1904	John B. Roberts.....	Philadelphia.
1905	Winfield S. Hall.....	Chicago.
1906	Donley C. Hawley.....	Burlington, Vt.

HONORARY MEMBERS.

(Limited to five to every one hundred Fellows.)

Date of election.	Name.	Residence.
1879	*Agnew, D. Hayes (*1892).....	Philadelphia, Pa.
1896	Babcock, J. W.....	Columbia, S. C.
1882	*Campbell, Henry F. (*1891).....	Augusta, Ga.
1888	Championiere, Lucas J.....	Paris, France.
1886	*Davis, N. S. (*1904).....	Chicago, Ill.
1888	*Didama, Henry D. (*1905).....	Syracuse, N. Y.
1882	*Flint, Austin (*1886).....	New York, N. Y.
1897	Flint, Austin, Jr.....	New York, N. Y.
1889	Grant, Sir James Alexander.....	Ottawa, Canada.
1879	*Gross, Samuel D. (*1884).....	Philadelphia, Pa.
1887	*Hewitt, W. M. Graily (*1893).....	London, England.
1884	*Holmes, Oliver Wendell (*1894).....	Boston, Mass.
1903	Jacobi, Mary Putman.....	New York, N. Y.
1889	Jordan, David Starr.....	Leland Stanford, Jr., University, Cal.
1887	*Le Fort, Leon (*1893).....	Paris, France.
1888	Lord Lister.....	London, England.
1904	Manson, Sir Patrick.....	London, England.
1887	Martin, August.....	Berlin, Germany.
1890	*Millard, Perry H. (*1897).....	St. Paul, Minn.
1885	Mitchell, S. Wier.....	Philadelphia, Pa.
1887	Mooren, Albert.....	Dusseldorf, Germany.
1901	Nettleship, E.....	Nutcombe Hill, England.
1895	Osler, William.....	Oxford, England.
1895	Park, Roswell.....	Buffalo, N. Y.

* Deceased.

Date of election.	Name.	Residence.
1896	Peterson, Frederick C.....	New York, N. Y.
1887	*Phillips, Chas. D. F. (*1904).....	London, England.
1896	Potter, Wm. Warren.....	Buffalo, N. Y.
1897	Ransohoff, Joseph.....	Cincinnati, O.
1888	*Rauch, John H. (*1893).....	Chicago, Ill.
1887	*Semmola, M. (*1896).....	Naples, Italy.
1883	*Sims, J. Marion (*1883).....	New York, N. Y.
1885	*Smith, Henry H. (*1890).....	Philadelphia, Pa.
1884	Sternberg, Geo. M.....	U. S. A. (retired).
1895	Stockton, C. G.....	Buffalo, N. Y.
1887	Unna, P. G.....	Hamburg, Germany.
1901	*Virchow, Rudolph (*1902).....	Berlin, Germany.
1902	Welch, William H.....	Baltimore, Md.
1888	-Wells, Sir T. Spencer (*1897).....	London, England.
<i>Honorary Members</i>		21

FELLOWS.

1882	Abbott, Griffith E.....	Leominster, Mass.
1903	Abbott, Harlan P.....	325 Broad, Providence, R. I.
1885	Acker, George N.....	913 16th, N. W., Washington, D. C.
1905	ADAMS, FRANK L.....	14th and Broadway, Oakland, Cal.
1883	*Adams, Z. B. (*1902).....	Framingham, Mass.
1905	Aderhold, Thomas M.....	Zeigler, Ill.
1880	*Agnew, Cornelius R. (*1888).....	New York, N. Y.
1892	Alden, Chas. H. Asst. Surg.-Gen. (retired) U. S. A.,	Newtonville, Mass.
1893	Alderson, M. E.....	Russellville, Ky.
1897	Alleman, H. M.....	Hanover, Pa.
1894	Allemann, L. A. W.....	64 Montague, Brooklyn, N. Y.
1881	*Allen, Chas. L. (*1890).....	Rutland, Vt.
1905	Allen, Frances M.....	100 State, Chicago, Ill.
1880	*Allen, Nathan (*1889).....	Lowell, Mass.
1878	*Allen, William H. (*1880).....	Philadelphia, Pa.
1885	*Alleyne, J. S. B. (*1895).....	St. Louis, Mo.
1892	Allyn, G. W.....	432 Penn Ave., Pittsburg, Pa.
1888	Allyn, Herman B.....	501 S. 42nd, Philadelphia, Pa.
1890	Alt, Adolf.....	3036 Locust, St. Louis, Mo.
1899	Amberg, S.....	1302 Madison Ave., Baltimore, Md.
1880	Amory, Robert.....	279 Beacon, Boston, Mass.
1879	Andrew, George L.....	1201 Michigan Ave., La Porte, Ind.
1884	*Andrews, Edmund (*1904).....	Chicago, Ill.
1884	Andrews, E. Wylls.....	2525 Prairie Ave., Chicago, Ill.

* Deceased. ‡ Letter to last address returned; present whereabouts unknown
Names in SMALL CAPITALS have commuted dues by a payment of \$20.

Date of election.	Name.	Residence.
1887	Andrews, Frank T.....	100 State, Chicago, Ill.
1892	Angle, Edward J.....	1215 O, Lincoln, Neb.
1903	Appel, Theodore B.....	305 N. Duke, Lancaster, Pa.
1879	Appleby, James F. R.....	1430 33d, N. W., Washington, D. C.
1902	Arbuthnot, Thomas S.....	5801 5th Ave., Pittsburg, Pa.
1879	*Asch, Morris J. (*1902).....	New York, N. Y.
1900	Aschman, Gustavus A..	2 National Ex. Bk. Bldg., Wheeling, W. Va.
1877	Atkinson, Wm. B.....	864 E. Chelten Ave., Germantown, Pa.
1898	Atwater, James B.....	N. Elm and Union, Westfield, Mass.
1905	Avery, Ralph W.....	South Pasadena, Cal.
1896	Babcock, Robert H.....	92 State, Chicago, Ill.
1905	Bacon, Charles S.....	426 Center, Chicago, Ill.
1898	Bagot, William S.....	Stedman Block, Denver, Colo.
1901	Baker, Albert R.....	604 New England Bldg., Cleveland, O.
1888	Baker, Clarence A.....	312 Congress, Portland, Me.
1890	Baker, George Fales.....	1818 Spruce, Philadelphia, Pa.
1891	*Baldwin, Henry R. (*1902).....	New Brunswick, N. J.
1877	Baldwin, Neilson A.....	21 3rd, Brooklyn, N. Y.
1895	Balloch, Edward A.....	1013 15th, N. W., Washington, D. C.
1892	Bannister, Henry M.....	828 Judson Ave., Evanston, Ill.
1894	Bardwell, E. O.....	Emporium, Pa.
1903	Barker, Byron F.....	Bath, Me.
1902	Barker, James F.....	54 Clinton Ave., Albany, N. Y.
1903	Barker, Olin G. A.....	300 Lincoln Bldg., Johnstown, Pa.
1898	BARLOW, W. JARVIS.....	328 Wilcox Bldg., Los Angeles, Cal.
1904	Barnhill, James U.....	242 E. State, Columbus, O.
1883	*Barnum, Eugene E. (*1904).....	Lancaster, C. H., Va.
1897	Barreto, O. de Mello.....	Sao Paulo, Brazil.
1896	Bartholow, Paul.....	1525 Locust, Philadelphia, Pa.
1882	Barton, James M.....	1337 Spruce, Philadelphia, Pa.
1889	*Bates, Joseph H. (*1894).....	Neponset, Ill.
1905	Baumann, Frederic A.....	103 State, Chicago, Ill.
1905	Baxter, George E.....	1916 Evanston Ave., Chicago, Ill.
1883	*Baxter, J. H. (*1890).....	U. S. A.
1904	Beach, George W.....	115 Front, Binghamton, N. Y.
1897	Beach, Wm. M.....	901 Bessemer Bldg., Pittsburg, Pa.
1878	*Beard, George M. (*1883).....	New York, N. Y.
1905	Beck, Carl.....	92 State, Chicago, Ill.
1882	Beck, Richard H.....	Hecktown, Pa.
1889	Beebe, Warren L.....	St. Cloud, Minn.
1891	Behrens, Bernt M.....	5 E. 25th, Minneapolis, Minn.

* Deceased. Name in SMALL CAPITALS has commuted dues by payment of \$30.

Date of election.	Name.	Residence.
1905	Belknap, Frederick W.....	385 N. State St., Chicago, Ill.
1889	Bell, Finis E.....	Mattoon, Ill.
1891	Bemus Morris N.....	111 E. 5th, Jamestown, N. Y.
1897	Benedict, A. L.....	156 W. Chippewa, Buffalo, N. Y.
1877	*Benham, S. W. (*1890).....	Pittsburg, Pa.
1879	*Bennett, William C. (*1886).....	Danbury, Conn.
1878	Bermingham, Edward J.....	542 Fifth Ave., New York, N. Y.
1890	*Bidwell, Walter D. (*1896).....	Colorado Springs, Colo.
1897	Bieser, Augustus E.....	256 W. 54th, New York, N. Y.
1889	*Bigelow, George E. (*1893).....	Boston, Mass.
1892	Biggs, Herman M.....	13 W. 57th, New York, N. Y.
1877	Billings, John S.....	32 E. 31st, New York, N. Y.
1897	Birney, David B.....	1810 De Lancey Place, Philadelphia, Pa.
1905	Bishop, Louis F.....	54 W. 55th, New York, N. Y.
1884	Bishop, Rufus W.....	70 State, Chicago, Ill.
1905	Black, Arthur D.....	31 Washington, Chicago, Ill.
1905	Black, Carl E.....	Jacksonville, Ill.
1893	Blackader, A. D.....	236 Mountain, Montreal, Canada.
1892	*Blake, Charles E. (*1894).....	San Francisco, Cal.
1899	Blake, Francis W.....	185 E. State, Columbus, O.
1902	Blumer, George.....	369 Sutter, San Francisco, Cal.
1889	Boise, Eugene.....	72 Ottawa, Grand Rapids, Mich.
1905	Bold, Francis J.....	915 Imperial Ave., Imperial, Cal.
1879	Bombaugh, Charles C.....	856 Park Ave., Baltimore, Md.
1898	Bonney, Sherman G.....	726 14th, Denver, Colo.
1890	Boone, Sherman W.....	Presque Isle, Me.
1889	Boothby, James M.....	Dubuque, Ia.
1886	*Borland, Matthew H. (*1888).....	Pittsburg, Pa.
1894	Bourne, George W.....	Kennebunk, Me.
1905	Bouton, Wm. C.....	715 North Ave., Waukegan, Ill.
1879	*Bowditch, Henry I. (*1892).....	Boston, Mass.
1882	Bowditch, Vincent Y.....	506 Beacon, Boston, Mass.
1905	Boyle, Blanche C.....	147 Spring St., Portland, Me.
1892	*Bradford, E. F. (*1904).....	Mechanic Falls, Me.
1889	Bradford, Thomas B.....	828 Washington, Wilmington, Del.
1894	Bradford, Wm. H.....	365 Congress, Portland, Me.
1900	Brainerd, Henry G.....	Conservative Life Bldg., Los Angeles, Cal.
1889	Braisted, Wm. C.....	U. S. N.
1905	Brandenburg, Frederick D.....	Mankato, Minn.
1903	Brannan, John W.....	11 W. 12th St., New York, N. Y.
1891	Brasseur, John B.....	Norway, Mich.

* Deceased.

Date of election.	Name.	Residence.
1894	*Braymer, O. W. (*1898).....	Camden, N. J.
1884	Brekes, David.....319 E. 51st, New York, N. Y.	
1903	Bridge, Norman.....217 S. Broadway, Los Angeles, Cal.	
1886	*Briggs, Charles E. (*1894).....	St. Louis, Mo.
1897	Brinsmade, Wm. B.....117 Montague, Brooklyn, N. Y.	
1890	*Bristol, Bennet J. (*1903).....	Webster Groves, Mo.
1897	Bristow, Algernon T.....234 Clinton, Brooklyn, N. Y.	
1894	Brock, Henry H.....662 Congress, Portland, Me.	
1889	Brockman, David C.....119 E. Main, Ottumwa, Ia.	
1892	Brodie, Benjamin P.....64 Lafayette Ave., Detroit, Mich.	
1883	Bronson, Edward B.....10 W. 49th, New York, N. Y.	
1901	Brower, Daniel R.....34 Washington, Chicago, Ill.	
1896	Brown, Adelaide.....1736 Washington, San Francisco, Cal.	
1883	*Brown, Alfred (*1899).....	Hellertown, Pa.
1896	*Brown, Charlotte B. (*1904).....	San Francisco, Cal.
1905	Brown, Edward V. L.....100 State, Chicago, Ill.	
1879	Brown, Francis H.....Hotel Lyndeboro, Boston, Mass.	
1894	Brown, Frank I.....	South Portland, Me.
1899	Brown, John E.....235 E. Town, Columbus, O.	
1890	*Browning, Wm. W. (*1900).....	Brooklyn, N. Y.
1877	*Bruce, George D. (*1891).....	Pittsburg, Pa.
1901	Bruner, Wm. E.....514 New England Bldg., Cleveland, O.	
1901	Bruyere, John.....123 Perry, Trenton, N. J.	
1881	*Buel, Henry W. (*1893).....	Litchfield, Conn.
1898	Buel, John L.....	Litchfield, Conn.
1889	*Buist, John R. (*1905).....	Nashville, Tenn.
1877	*Bulkeley, J. E. (*1886).....	Wilkes-Barre, Pa.
1879	Bulkley, L. Duncan.....531 Madison Ave., New York, N. Y.	
1886	*Bunting, Ross R. (*1900).....	Philadelphia, Pa.
1888	*Burbank, Augustus H. (*1895).....	Yarmouthville, Me.
1881	*Burchard, Thomas H. (*1896).....	New York, N. Y.
1897	Burgin, Herman..63 W. Chelton Ave., Germantown, Philadelphia, Pa.	
1905	Burkland, Philip R.....	Vermillion, S. D.
1905	Burr, Albert H.....100 State, Chicago, Ill.	
1905	Burrage, Thomas J.....	Portland, Me.
1882	*Bush, Lewis P. (*1892).....	Wilmington, Del.
1892	Butler, Glentworth R.....229 Gates Ave., Brooklyn, N. Y.	
1905	Byford, Henry T.....100 State, Chicago, Ill.	
1879	*Cabell, James L. (*1889).....	Charlottesville, Va.
1882	Cadwalader, Charles E.....240 S. 4th, Philadelphia, Pa.	
1901	Cadwalader, Edith W.....2010 Chestnut, Philadelphia, Pa.	
1905	Campbell, Frank J.....606 Front, Fargo, N. D.	

* Deceased.

Date of election.	Name.	Residence.
1901	Campbell, Wm. F.....	86 Greene Ave., Brooklyn, N. Y.
1895	Capron, Franklin P.....	118 Angell, Providence, R. I.
1898	Carhart, Wm. M. d'A.....	252 Madison Ave., New York, N. Y.
1905	Carlton, Edward P.....	Keyeser, Wis.
1899	*Carpenter, Eugene C. (*1902).....	Columbus, O.
1903	Carpenter, James S.....	Pottsville, Pa.
1879	*Carpenter, John T. (*1899).....	Pottsville, Pa.
1894	Carpenter, W. T.....	Iron Mountain, Mich.
1881	Carr, George W.....	27 Waterman, Providence, R. I.
1905	Carter, Charles W.....	Batavia, Ill.
1889	Carter, James M. G.....	236 County, Waukegan, Ill.
1888	*Cary, George (*1899).....	Houlton, Me.
1905	Cavano, Wm. M.....	415 Buchanan, San Francisco, Cal.
1892	Castle, Curtis H.....	Merced, Cal.
1882	Castle, Franklin D.....	418 S. Broad, Philadelphia, Pa.
1879	*Caswell, Edward T. (*1887).....	Providence, R. I.
1892	Cato, Frank L.....	DeSoto, Ga.
1890	Cattell, Henry W.....	3709 Spruce, Philadelphia, Pa.
1904	Caverly, C. S.....	Rutland, Vt.
1900	*Chaddock, Charles G. (*1904).....	St. Louis, Mo.
1895	Chapin, Charles V.....	City Hall, Providence, R. I.
1904	Chapin, John B.....	44th and Market, Philadelphia, Pa.
1896	*Chapman, Frank B. (*1897).....	Middleton, Mass.
1892	Chapman, Norman H.....	Monte Vista, Colo.
1898	Chase, John.....	414 Kittredge Bldg., Denver, Colo.
1890	*Cheeseman, Nathaniel S. (*1901).....	Scotia, N. Y.
1895	Chesebro, Edmund D.....	Elwood Ave. and Hawthorne, Providence, R. I.
1884	*Chestnut, John H. W. (*1900).....	Philadelphia, Pa.
1878	Chrystie, Thomas M. L.....	1748 Broadway, New York, N. Y.
1903	Churchill, Donald.....	369 Broad, Providence, R. I.
1878	Cisna, Wm. R.....	Gault House, Chicago, Ill.
1879	*Clark, Charles F.....	Brooklyn, N. Y.
1887	Clarke, Augustus P.....	825 Mass. Ave., Cambridge, Mass.
1879	Cleeman, Richard A.....	2135 Spruce, Philadelphia, Pa.
1898	Clough, Augustus A.....	1349 California, Denver, Colo.
1891	Cluness, Wm. R.....	Pacific Mutual Bldg., San Francisco, Cal.
1883	Clute, Wm. T.....	520 Liberty, Schenectady, N. Y.
1905	Coakley, Cornelius G.....	49 W. 58th, New York, N. Y.
1890	Coan, Titus M.....	70 Fifth Ave., New York, N. Y.
1905	Cobb, George H.....	South Orange, N. J.
1884	*Coblentz, Joseph (*1899).....	Vaughan, Wash.

* Deceased.

Date of election.	Name.	Residence.
1894	Cochrane, Jasper D.....	Saco, Me.
1888	*Cocks, David C. (*1890).....	New York, N. Y.
1901	Coggeshall, Frederic.....	1077 Boylston Ave., Boston, Mass.
1897	Cogswell, Charles H.....	409 Marlboro, Boston, Mass.
1894	Cohen, Solomon Solis.....	1525 Walnut, Philadelphia, Pa.
1905	Cohenour, Vincent J.....	222 N. Chicago, Joliet, Ill.
1895	Collins, George L.....	223 Benefit, Providence, R. I.
1877	*Collins, James (*1895).....	Philadelphia, Pa.
1896	Collins, Rufus G.....	5059 State, Chicago, Ill.
1904	Conaway, W. P.....	1723 Pacific Ave., Atlantic City, N. J.
1905	Cone, Sydney M.....	2326 Eutaw Place, Baltimore, Md.
1899	Connell, Charles W.....	Fall River, Mass.
1886	Connell, J. G.....	3519 Fifth Ave., Pittsburg, Pa.
1880	Conner, Phineas S.....	159 W. 9th, Cincinnati, O.
1902	Connor, Guy L.....	91 Lafayette Ave, Detroit, Mich.
1878	Connor, Leartus.....	91 Lafayette Ave., Detroit, Mich.
1904	Connor, Ray.....	91 Lafayette Ave., Detroit, Mich.
1885	Cook, Charles E.....	Mendota, Ill.
1877	*Cook, Joseph S. (*1903).....	Washington, N. J.
1903	Cooke, Henry A.....	234 Benefit, Providence, R. I.
1899	Cooperrider, Charles A.....	370 S. 4th, Columbus, O.
1903	Cordeiro, Frederick J. B.....	U. S. N.
1898	Corson, Elton S.....	Toungoo, Burma.
1898	Corss, Frederic.....	Kingston, Pa.
1888	*Cotton, David S. (*1902).....	Portsmouth, O.
1897	Coverly, John H.....	191 Washington Park, Brooklyn, N. Y.
1882	Cowan, George.....	Danville, Ky.
1884	Cowles, Edward.....	McLean Hospital, Waverly, Mass.
1897	CRAIG, ALEXANDER R.....	232 Cherry, Columbia, Pa.
1901	CRAIG, JOHN J.....	Columbia, Pa.
1902	Craig, Joseph D.....	12 Ten Broeck, Albany, N. Y.
1883	*Crane, Charles H. (*1883).....	U. S. A.
1897	Criado, Louis F.....	430 W. 116th, New York, N. Y.
1899	Crile, George W.....	"The Osborn," Cleveland, O.
1888	*Crocker, Frank H. (*1903).....	Machias, Me.
1903	Crooker, George H.....	Providence, R. I.
1892	Crossland, Jefferson C.....	Zanesville, O.
1905	Culbertson, Carey.....	687 W. Monroe, Chicago, Ill.
1888	Culbertson, Emma B.....	33 Newbury, Boston, Mass.
1897	Culbreth, David M. R.....	203 E. Preston, Baltimore, Md.
1899	CULVER, CHARLES M.....	36 Eagle, Albany, N. Y.

* Deceased. Names in SMALL CAPITALS have commuted dues by payment of \$20.

Date of election.	Name.	Residence.
1888	Cummings, Charles E.....	Heussy Bldg., Seattle, Wash.
1888	*Cummings, George H. (*1903).....	Portland, Me.
1901	Curtin, Roland G.....	22 S. 18th, Philadelphia, Pa.
1886	Curtis, Lester.....	35 Douglas Place, Chicago, Ill.
1877	*Curwen, John (*1901).....	Harrisburg, Pa.
1888	Cutter, Charles K.....	178 School, Winter Hill, Mass.
1905	Cuttle, Frederick.....	Red Lodge, Mont.
1903	Cutts, Wm. B.....	183 Broad, Providence, R. I.
1900	Daland, Judson.....	317 S. 18th, Philadelphia, Pa.
1881	Dana, Charles L.....	53 W. 53rd, New York, N. Y.
1889	*Dana, Wm. L. (*1897).....	Portland, Me.
1899	Dandridge, Nathaniel P.....	422 Broadway, Cincinnati, O.
1891	Darey, J. Herbert.....	Sioux City, Ia.
1898	Darnall, Wm. E.....	121 S. Illinois, Atlantic City, N. J.
1879	Darrach, James....	5021 Green, Germantown, Pa.
1904	Davidson, Anstruther.....	501 Laughlin Bldg., Los Angeles, Cal.
1889	*Davies, John E. (*1900).....	Madison, Wis.
1888	Davies, Oscar C. S.....	19 Stone, Augusta, Me.
1897	Davis, Gwilym G.....	255 S. 16th, Philadelphia, Pa.
1895	Davis, John S., Jr.....	University Station, Charlottesville, Va.
1901	Davis, John S.....	1215 Cathedral, Baltimore, Md.
1885	Davis, Nathan S.....	72 Madison, Chicago, Ill.
1886	Davis, Thomas D.....	261 Shady Ave., Pittsburg, Pa.
1904	Davis, Wm. M.....	261 Shady Ave., Pittsburg, Pa.
1895	Day, Frank L.....	240 Benefit, Providence, R. I.
1880	Deal, Lemuel J.....	2106 N. Hancock, Philadelphia, Pa.
1889	Dearborn, Alvah B.....	Winter Hill, Mass.
1905	Dearborn, Geo. Van Ness, Tufts College Medical School, Boston, Mass.	
1905	DeLaney, John P.....	12 Park Place, Geneva, N. Y.
1889	Denison, Charles.....	823 14th, Denver, Colo.
1897	Dennis, Frederic S.....	542 Madison Ave., New York, N. Y.
1905	DeSilva, Joseph.....	Rock Island, Ill.
1892	*DeSpelder, Elias (*1906).....	Zeeland, Mich.
1882	Devendorf, C. A.....	508 Woodward Ave., Detroit, Mich.
1889	Deweese, Wm. B.....	542 S. Santa Fe Ave., Salina, Kas.
1900	Dewey, Richard.....	Wauwatosa, Wis.
1903	DeWolf, Halsey.....	212 Benefit, Providence, R. I.
1900	Dickey, John L.....	1137 Chapline, Wheeling, W. Va.
1879	*Dickson, J. N. (*1893).....	Pittsburg, Pa.
1897	Diefenderfer, Harold.....	6303 Monroe Ave., Chicago, Ill.
1897	Diehl, Alfred E.....	362 Pearl, Buffalo, N. Y.

* Deceased.

Date of election.	Name.	Residence.
1888	Diven, Samuel L.....	95 N. Hanover, Carlisle, Pa.
1889	Doane, L. Leo.....	Butler, Pa.
1900	Dock, George.....	1014 Cornwell Place, Ann Arbor, Mich.
1896	Dodds, J. Chambers.....	Champaign, Ill.
1878	*Dodge, Daniel A. (*1882).....	Brooklyn, N. Y.
1896	Dorland, W. A. Newman.....	128 S. 17th, Philadelphia, Pa.
895	Doughty, Wm. H., Jr.....	822 Greene, Augusta, Ga.
1892	Dow, Frank F.....	137 Park Ave., Rochester, N. Y.
1897	*Drown, Thomas M. (*1904).....	South Bethlehem, Pa.
1879	*Drysedale, Thomas M. (*1904).....	Philadelphia, Pa.
1883	*DuBois, Francis L. (*1895).....	U. S. N.
1881	Dudley, E. C.....	1617 Indiana Ave., Chicago, Ill.
1886	*Duff, John M. (*1904).....	Pittsburg, Pa.
1905	Dunavan, Louis W.....	4132 Indiana Ave., Chicago, Ill.
1905	Duncan, Wm. P.....	E. State, Jacksonville, Ill.
1891	Dundor, Adam B.....	118 S. 4th, Reading, Pa.
1878	*Dunglison, Richard J. (*1901).....	Philadelphia, Pa.
1898	Dunham, Edward K.....	338 E. 26th, New York, N. Y.
1899	Dunham, John D.....	228 E. Town, Columbus, O.
1904	Dunlap, T. G.....	921 Pacific Ave., Atlantic City, N. J.
1890	*Dunlap, W. Herbert (*1895).....	Syracuse, N. Y.
1883	*Dunster, E. S. (*1888).....	Ann Arbor, Mich.
1889	Dunton, Wm. R....	5059 Germantown Ave., Philadelphia, Pa.
1894	Durand, Henry S.....	87 S. Fitzhugh, Rochester, N. Y.
1882	Dwight, Henry E.....	336 S. 15th, Philadelphia, Pa.
1878	*Dyer, Ezra (*1887).....	Newport, R. I.
1905	Eberhart, Noble M.....	72 Madison, Chicago, Ill.
1891	Edgar, James C.....	54 E. 34th, New York, N. Y.
1892	Edwards, Arthur R.....	3801 Grand Boul., Chicago, Ill.
1905	Edwards, E. Gard.....	La Junta, Colo.
1904	Egbert, Joseph C.....	Wayne, Pa.
1897	Einhorn, Max.....	20 E. 63rd, New York, N. Y.
1905	Eisendrath, Daniel N.....	103 State, Chicago, Ill.
1898	Elliot, George T.....	36 E. 35th, New York, N. Y.
1897	Ellis, H. Bert.....	243 Bradbury Block, Los Angeles, Cal.
1885	Elmer, Henry W.....	65 W. Commerce, Bridgeton, N. J.
1888	Elmer, Matthew K.....	65 W. Commerce, Bridgeton, N. J.
1880	*Elmer, William (*1889).....	Bridgeton, N. J.
1880	Elmer, Wm., Jr.....	44 W. State, Trenton, N. J.
1900	†Elmire, J. A.....	
1879	*Elsberg, Louis (*1885).....	New York, N. Y.

* Deceased. † Address not known.

Date of election.	Name.	Residence.
1902	Elting, Arthur W.....	247 State, Albany, N. Y.
1880	Ely, James W. C.....	61 Waterman, Providence, R. I.
1897	Ely, Thomas C.....	2041 Green, Philadelphia, Pa.
1883	Emerson, Justin E.....	128 Henry, Detroit, Mich.
1890	Emerson, Nathaniel B.....	Honolulu, Hawaiian Islands
1879	*Engel, Hugo (*1897).....	Philadelphia, Pa.
1892	*Engelman, George J. (*1903).....	Boston, Mass.
1898	Engelmann, Rosa.....	5531 Monroe Ave., Chicago, Ill.
1892	Erwin, R. W.....	Bay City, Mich.
1897	Eshner, Augustus A.....	1019 Spruce, Philadelphia, Pa.
1898	Esterly, Daniel E.....	723 Kansas Ave., Topeka, Kas.
1892	Estes, Wm. L.....	St. Luke's Hospital, South Bethlehem, Pa.
1877	Evans, Horace Y.....	1631 Green, Philadelphia, Pa.
1888	*Eveleth, John M. (*1894).....	Hallowell, Me.
1900	Everitt, Ella B.....	1807 Spruce, Philadelphia, Pa.
1889	*Ewers, Henry F. (*1899).....	Burlington, Ia.
1889	Ewing, Arthur E.....	2670 Washington Ave., St. Louis, Mo.
1892	Ewing, W. Brown.....	Atlas Block, Salt Lake City, Utah.
1888	Fairbairn, Henry A.....	213 McDonough, Brooklyn, N. Y.
1881	*Farnham, Horace P. (*1886).....	New York, N. Y.
1883	Farnsworth, Philo J.....	Clinton, Ia.
1893	Favill, Henry B.....	100 State, Chicago, Ill.
1879	*Fegley, Orlando (*1900).....	Allentown, Pa.
1892	Felch, Theodore A.....	304 W. Eclidu, Ishpeming, Mich.
1891	*Felter, Mahlon (*1905).....	Troy, N. Y.
1891	*Fenger, Christian (*1902).....	Chicago, Ill.
1904	Fetterolf, George.....	330 S. 16th, Philadelphia, Pa.
1904	Figueira, Mathias.....	14 Stuyvesant Ave., Brooklyn, N. Y.
1904	Filbert, C. E.....	Atlantic City, N. J.
1905	Files, Ernest W.....	Gorham, Me.
1905	Findley, Palmer.....	Omaha, Neb.
1878	Fisher, Frank.....	1911 Arch, Philadelphia, Pa.
1878	*Fisher, Geo. J. (*1893).....	Sing Sing, N. Y.
1889	Fisk, Samuel A.....	Brimfield, Mass.
1889	Fiske, George F.....	425 LaSalle Ave., Chicago, Ill.
1890	Fitz, Edward.....	328 S. Rose, Kalamazoo, Mich.
1892	Fleming, George W.....	Shelbyville, Ind.
1889	*Flint, Kendall (*1892).....	Haverhill, Mass.
1890	Flintermann, Johann.....	368 Woodward Ave., Detroit, Mich.
1888	Flood, Everett.....	Palmer, Mass.
1897	Fly, Edward M.....	National City, Cal.

* Deceased.

Date of election.	Name.	Residence.
1890	Flynn, Wm.	Marion, Ind
1893	Focht, Wm. H.	641½ E. Perry, Tiffin, O.
1896	*Ford, De Saussure (*1906)	Augusta, Ga.
1878	*Ford, Wm. H. (*1897)	Philadelphia, Pa.
1901	Ford, Wm. W.	1616 W. Calvert, Baltimore, Md.
1892	Fordyce, John A.	80 W. 40th, New York, N. Y.
1897	Forwood, Wm. H.	U. S. A. (retired).
1899	Foshay, P. Maxwell	1208 Tribune Bldg., Chicago, Ill.
1890	Foskett, George M.	235 Pleasant, Worcester, Mass.
1888	*Foster, Addison H. (*1906)	Oak Park, Ill.
1888	Foster, Charles W.	Woodford, Me.
1905	Foster, Thomas	2319 E. 5th, Dayton, O.
1897	Foster, Wm. S.	252 Shady Ave., Pittsburg, Pa.
1877	*Foulke, Lewis W. (*1887)	Chillicothe, O.
1882	*Foulkes, James F.	Oakland, Cal.
1878	Fox, George H.	616 Madison Ave., New York, N. Y.
1905	Frank, Mortimer	31 Washington, Chicago, Ill.
1877	*Franklin, Gustavus S. (*1901)	Chillicothe, O.
1884	Free, Spencer M.	Du Bois, Pa.
1905	Freeman, George F.	U. S. N.
1905	Freeman, Harry E.	Millington, Ill.
1897	Freeman, Leonard	1374 Elizabeth, Denver, Colo.
1882	*French, George F. (*1897)	Minneapolis, Minn.
1893	French, Samuel W.	1216 Grand Ave., Milwaukee, Wis.
1889	*French, Wm. F. (*1898)	Noroton, Conn.
1898	Fretz, John Edgar	Easton, Pa.
1901	Friedenwald, Julius	7 W. Franklin, Baltimore, Md.
1901	Friedlander, Alfred	643 Forrest Ave., Cincinnati, O.
1882	*Frost, Carlton P. (*1896)	Hanover, N. H.
1878	*Fruitnight, John H. (*1900)	New York, N. Y.
1888	Fuller, Charles	Lincoln, Me.
1897	Fuller, George E.	Monson, Mass.
1903	Fulton, Frank T.	169 Angell, Providence, R. I.
1888	*Furbeck, Peter R. (*1902)	Gloversville, N. Y.
1888	Fry, Frank R.	2610 Locust, St. Louis, Mo.
1882	Garcelon, Alonzo	Lewiston, Me.
1890	Gardiner, Edwin J.	34 Washington, Chicago, Ill.
1905	Garrett, John D.	1733 N. Senate Ave., Indianapolis, Ind.
1892	*Gaston, J. McFadden (*1903)	Atlanta, Ga.
1898	*Gaylord, John F. (*1903)	Plymouth, Mass.
1905	Gehring, Edwin W.	690 Congress, Portland, Me.

* Deceased.

Date of election.	Name.	Residence.
1882	*Gerhard, Abraham S. (*1891).....	Philadelphia, Pa.
1878	Gerhard, Jerome Z.	29 S. 3rd, Harrisburg, Pa.
1883	Gerrish, Frederic H.	675 Congress, Portland, Me.
1892	Gerster, Arpad G.	34 E. 75th, New York, N. Y.
1888	*Gibson, Arthur C. (*1904).....	Bangor, Me.
1887	*Gibson, Wm. J. (*1893).....	Philadelphia, Pa.
1905	Gifford, Harold.....	405 Karbach Block, Omaha, Neb.
1883	*Gihon, Albert H. (*1901).....	U. S. N.
1897	Gilchrist, Thomas C.	317 N. Charles, Baltimore, Md.
1888	*Given, Obadiah G. (*1889).....	Carlisle, Pa.
1890	Gleason, E. Baldwin.....	2033 Chestnut, Philadelphia, Pa.
1904	Gleysteen, Dirk V.	Alton, Ia.
1897	Goldspohn, Albert.....	519 Cleveland Ave., Chicago, Ill.
1888	Goodale, George L.	Cambridge, Mass.
1901	Goodale, Joseph L.	397 Beacon, Boston, Mass.
1890	Goodale, Walter T.	Saco, Me.
1905	Goodwin, Henry F.	6021 Woodlawn Ave., Chicago, Ill.
1898	Goodwin, Ralph S.	Thomaston, Conn.
1890	Gorgas, Ferdinand J. S.	845 N. Eutaw, Baltimore, Md.
1892	Gould, George M.	1722 Walnut, Philadelphia, Pa.
1878	*Govan, Wm. (*1894).....	Stony Point, N. Y.
1889	Graham, David W.	672 Monroe, Chicago, Ill.
1884	*Graham, F. Ridgely (*1895).....	Chester, Pa.
1892	Grant, H. Horace.....	4th and Walnut, Louisville, Ky.
1903	Gray, Alfred W.	694 Summit Ave., Milwaukee, Wis.
1905	Gray, Frank F.	Hudson, Wis.
1902	Grayson, Thomas W.	1101 Westinghouse Bldg., Pittsburg, Pa.
1902	Greeley, Jane L.	111 E. Fifth, Jamestown, N. Y.
1889	Green, Edgar M.	Easton, Pa.
1905	Green, Frederick R.	6314 Greenwood Ave., Chicago, Ill.
1884	*Green, James S. (*1892).....	Elizabeth, N. J.
1883	Green, John.....	2670 Washington Ave., St. Louis, Mo.
1891	*Green, John T. (*1892).....	Easton, Pa.
1876	*Green, Traill (*1897).....	Easton, Pa.
1893	Gregory, Louis L.	514 Evanston Ave., Chicago, Ill.
1902	Gribbin, Harry E.	Rockland, Me.
1888	Grim, Henry A.	Allentown, Pa.
1905	Griswold, Walter S.	512 Burke Bldg., Seattle, Wash.
1892	Groff, George G.	Lewisburg, Pa.
1892	Grosvenor, J. W.	118 Plymouth Ave., Buffalo, N. Y.
1905	Gulick, Clyde D.	Urbana, Ill.

* Deceased.

Date of election.	Name.	Residence.
1890	*Gumbes, Charles W. (*1903).....	Oaks, Pa.
1889	Guthrie, J. Renwick.....	485 Locust, Dubuque, Ia.
1884	Hadden, Alexander.....	155 E. 51st, New York, N. Y.
1892	*Hahn, Henry H. (*1905).....	Youngstown, O.
1891	Halberstadt, Andrew H.....	Pottsville, Pa.
1888	Hale, George W.....	235½ N. Summer, Nashville, Tenn.
1905	Hall, Alfred M.....	38 Bellevue Place, Chicago, Ill.
1905	Hall, George W.....	34 Washington, Chicago, Ill.
1894	Hall, Josiah N.....	308 Jackson Bldg., Denver, Colo.
1896	Hall, Winfield S.....	2431 Dearborn, Chicago, Ill.
1882	Halsey, Calvin C.....	Montrose, Pa.
1880	Ham, Albert E.....	199 Benefit, Providence, R. I.
1901	Hamburger, Louis P.....	1210 Eutaw Place, Baltimore, Md.
1899	Hamilton, C. S.....	1 N. 4th, Columbus, O.
1877	*Hamilton, Frank H. (*1886).....	New York, N. Y.
1904	Hamilton, James M.....	Rutland, Vt.
1899	Hamilton, Wm. D.....	1 N. 4th, Columbus, O.
1904	Hammond, L. J.....	1222 Spruce, Philadelphia, Pa.
1894	Hammond, Wm. P.....	47 Monument Sq., Charlestown, Boston, Mass.
1892	Hanna, W. M.....	Henderson, Ky.
1885	Hansell, Howard F.....	1528 Walnut, Philadelphia, Pa.
1897	Hardie, Thomas M.....	34 Washington, Chicago, Ill.
1905	Hardon, Robert W.....	100 State, Chicago, Ill.
1891	Hare, George A.....	Fresno, Cal.
1882	Harlan, George C.....	1500 Walnut, Philadelphia, Pa.
1899	Harlow, George A.....	New Insurance Bldg., Milwaukee, Wis.
1880	*Harlow, Lewis D. (*1895).....	Philadelphia, Pa.
1882	Harper, Thomas S.....	Hotel Windsor, Philadelphia, Pa.
1897	Harriman, Wilbert E.....	Ames, Ia.
1879	*Harris, Elisha (*1884).....	New York, N. Y.
1891	*Harris, Wm. H. (*1893).....	Louisville, Ky.
1889	Harrison, Wallace K.....	52 Walton Place, Chicago, Ill.
1889	Harsha, Wm. M.....	4201 Grand Boulevard, Chicago, Ill.
1880	*Hartley, Theophilus S.....	Ridgeway, Pa.
1902	Harvey, Edwin B.....	Westboro, Mass.
1878	Harvey, Olin F.....	Wilkes-Barre, Pa.
1884	Hatfield, Marcus P.....	42 Madison, Chicago, Ill.
1878	*Hatfield, Nathan (*1897).....	Philadelphia, Pa.
1905	Haugan, Otto M.....	Fergus Falls, Minn.
1890	Haven, Alfred C.....	Lake Forest, Ill.
1898	Haven, Foster S.....	143 W. 61st, New York, N. Y.

*Deceased.

Date of election.	Name.	Residence.
1898	Hawkes, Forbes.....42	E. 26th, New York, N. Y.
1890	*Hawkes, Wm. H. (*1904).....	Washington, D. C.
1898	Hawkins, Thomas H.....1740	Welton, Denver, Colo.
1900	Hawley, Donly C.....204	Pearl, Burlington, Vt.
1897	Hay, Eugene C.....	Hot Springs, Ark.
1898	Hayes, Wm. Van V.....34	W. 50th, New York, N. Y.
1904	Hazen, Charles M.....	Bon Air, Va.
1893	Head, Louis R.....2	S. Pinkney, Madison, Wis.
1888	Heath, Frederic C.....427	Newton Claypool Bldg., Indianapolis, Ind.
1902	Heckel, Edward B.....524	Penn Ave., Pittsburg, Pa.
1889	Heffron, John L.....528	S. Salina, Syracuse, N. Y.
1888	*Helm, Wm. H. (*1898).....	Sing Sing, N. Y.
1889	Hemenway, Henry B.....	Evanston, Ill.
1888	Herbst, Henry H.....28	N. 5th, Allentown, Pa.
1905	Herdien, E. Forrest.....	Baker City, Ore.
1890	Herdman, Wm. J.....328	E. Huron, Ann Arbor, Mich.
1889	Herrick, Fred S.....	Brooklyn, Me.
1889	*Herrick, Henry J. (*1901).....	Cleveland, O.
1880	Hersey, George D.....148	Broad, Providence, R. I.
1898	Hershey, Edgar P.....412	California Bldg., Denver, Colo.
1899	Hertzler, Arthur E.....3136	Harrison, Kansas City, Mo.
1878	Hess, Robert J.....610	Fairmount Ave., Philadelphia, Pa.
1898	Hessler, Robert.....	Logansport, Ind.
1905	Heywood, Charles W.....	Riverside, Ill.
1905	Higgins, Samuel G.....72	E. Madison, Chicago, Ill.
1888	Hill, Gershom H.....	Equitable Bldg., Des Moines, Ia.
1888	Hill, Horace B.....	Augusta, Me.
1897	*Hill, Horace G. (*1901).....	Philadelphia, Pa.
1905	Hinman, Clayton J.....56	Kinzie, Chicago, Ill.
1896	Hinsdale, Guy.....	Hot Springs, Va.
1888	*Hitchcock, Alfred (*1900).....	Farmington, Me.
1888	Hitchcock, Charles W.....270	Woodward Ave., Detroit, Mich.
1888	Hitchcock, Edward, Jr.....2	Grove Place, Ithaca, N. Y.
1888	*Hitchcock, Francis E. (*1896).....	Rockland, Me.
1905	Hoag, Ernest B.....309	E. Colorado, Pasadena, Cal.
1881	*Hodgdon, Richard L. (*1893).....	Arlington, Mass.
1878	*Hodge, Hugh L. (*1881).....	Philadelphia, Pa.
1898	Hoff, John Van R.....	U. S. A.
1884	Holland, James W.....2006	Chestnut, Philadelphia, Pa.
1897	Hollopeter, Wm. C.....1428	N. Broad, Philadelphia, Pa.
1897	Holmes, A. Mansfield.....205	Jackson Block, Denver, Colo.

* Deceased.

Date of election.	Name.	Residence.
1893	Holmes, Bayard.....	104 E. 40th, Chicago, Ill.
1882	*Holmes, Edward L. (*1900).....	Chicago, Ill.
1904	Holmes, Lawrence E.....	Biltmore, N. C.
1902	Holton, Henry D.....	Brattleboro, Vt.
1904	*Hoople, Nelson H. (*1905).....	Brooklyn, N. Y.
1903	Hoover, Percy D.....	Waynesboro, Pa.
1905	Hope, Walter G.....	Albuquerque, New Mexico.
1882	Hopkins, George G.....	350 Washington Ave., Brooklyn, N. Y.
1888	Hough, Garry de N.....	542 County, New Bedford, Mass.
1891	House, Charles F.....	Painesville, O.
1905	Houston, James P.....	1180 Sheffield Ave., Chicago, Ill.
1882	*How, Lyman B. (*1893).....	Manchester, N. H.
1904	Howe, Wm. A.....	Phelps, N. Y.
1905	Hoxie, George H.....	Simpson Blk., Kansas City, Kas.
1903	Hoye, Henry J.....	194 Broad, Providence, R. I.
1890	Hubbard, Wm. N.....	53 W. 54th, New York, N. Y.
1889	*Hubbell, Charles L. (*1890).....	Williamstown, Mass.
1885	Huger, Wm. H.....	140 Broad, Charleston, S. C.
1902	Huggins, Walter L.....	104 Jay, Schenectady, N. Y.
1905	Hulst, Henry.....	88 Fountain, Grand Rapids, Mich.
1901	Hunner, Guy L.....	1412 Eutaw Place, Baltimore, Md.
1888	Hunt, Charles O.....	321 Brackett, Portland, Me.
1888	*Hunt, Henry H. (*1894).....	Portland, Me.
1889	Hunter, Charles H.....	519 1st Ave. S., Minneapolis, Minn.
1904	Hurd, Albert G.....	Millbury, Mass.
1890	Hurd, Arthur W.....	State Hospital, Buffalo, N. Y.
1889	Hurd, Henry M.....	Johns Hopkins Hospital, Baltimore, Md.
1878	Hutchins, Alexander.....	796 DeKalb Ave., Brooklyn, N. Y.
1890	Hutchinson, Woods.....	Redland, Cal.
1884	Hyde, James N.....	100 State, Chicago, Ill.
1905	Inglis, John.....	314 W. 14th, Pueblo, Colo.
1890	Irish, John C.....	219 Central, Lowell, Mass.
1905	Irons, Ernest E.....	103 State, Chicago, Ill.
1879	*Irwin, Crawford (*1900).....	Hollidaysburg, Pa.
1888	Isham, George S.....	468 N. State, Chicago, Ill.
1889	*Jackson, Abraham R. (*1892).....	Chicago, Ill.
1882	Jackson, Edward.....	1434 Glenarm, Denver, Colo.
1900	Jackson, John H.....	Fall River, Mass.
1905	Jackson, Thomas J.....	521 E. 39th, Chicago, Ill.
1889	*Jacobs, Luther D. (*1904).....	Emporia, Kas.
1884	*Jaggard, Wm. W. (*1896).....	Chicago, Ill.

* Deceased.

Date of election.	Name.	Residence.
1892	Jenkins, Wilbur O.....	14 S. 7th, Terre Haute, Ind.
1886	Jennings, Samuel D.....	Sewickly, Pa.
1905	Jepson, Wm.....	2000 Jackson, Sioux City, Ia.
1879	Jewett, Charles.....	330 Clinton Ave., Brooklyn, N. Y.
1894	Jewett, Charles S.....	892 Main, Buffalo, N. Y.
1888	Johnson, Anna H.....	Redlands, Cal.
1898	Johnson, Frank M.....	43 Tremont, Boston, Mass.
1884	Johnson, Frank S.....	2521 Prairie Ave., Chicago, Ill.
1897	Johnson, George W.....	733 Grace, Chicago, Ill.
1884	*Johnson, Hosmer A. (*1891).....	Chicago, Ill.
1892	Johnson, John G.....	493 Woodward Ave., Detroit, Mich.
1882	Johnson, Joseph Tabor.....	1728 K, N. W., Washington, D. C.
1888	Johnson, Russell H.....	Summit, Chestnut Hill, Philadelphia, Pa.
1897	Johnson, Woodbridge O.....	Fu San, Korea.
1905	Johnston, Ellis A.....	Cary Station, Ill.
1895	*Johnston, R. Erskine (*1901).....	Danville, Pa.
1889	*Johnstone, A. W. (*1905).....	Cincinnati, O.
1889	*Jones, C. George.....	Jacksonville, Ill.
1899	Jones, Harry H.....	626 E. Market, York, Pa.
1899	Jones, Howard.....	Circleville, O.
1880	§Jones, H. Webster.....	
1904	Jones, P. M.....	Y. M. C. A. Bldg., San Francisco, Cal.
1880	*Jones, Samuel J. (*1901).....	Chicago, Ill.
1897	*Jordan, James R. (*1898).....	Montgomery, Ala.
1889	*Joy, Henry L. (*1892).....	Marshall, Mich.
1900	Joy, J. Addison.....	1920 Pacific Ave., Atlantic City, N. J.
1878	Judson, Adoniram B.....	53 Washington Sq., New York, N. Y.
1905	Kallenberg, Henry F.....	153 LaSalle, Chicago, Ill.
1886	Kearns, W. D.....	1734 Penn Ave., Pittsburg, Pa.
1879	*Kedzie, Robert C. (*1902).....	Agricultural College, Mich.
1899	Keen, Wm. W.....	1729 Chestnut, Philadelphia, Pa.
1895	*Keene, George F. (*1905).....	Cranston, R. I.
1891	*Keeney, James F. (*1894).....	U. S. N.
1892	Kelley, Richmond.....	First and Jefferson, Portland, Ore.
1894	Kellogg, E. Wells.....	420 Mitchell, Milwaukee, Wis.
1900	Kelly, A. O. J.....	1911 Pine, Philadelphia, Pa.
1905	Kelso, Curtis E.....	840 N. 46th, Chicago, Ill.
1883	*Kemper, Andrew C. (*1905).....	Cincinnati, O.
1889	Kennedy, Josiah F.....	State House, Des Moines, Ia.
1905	Kerr, Ellis Kirk.....	103 State, Chicago, Ill.
1884	*Kerr, James W.....	York, Pa.

* Deceased. § Address not known.

Date of election.	Name.	Residence.
1889	Kessel, George.....	Cresco, Ia.
1876	*Keyser, Peter D. (*1897).....	Philadelphia, Pa.
1898	Kickland, Wm. A.....	Fort Collins, Colo.
1889	Kidder, F. Thomas.....	Woodstock, Vt.
1893	Kiefer, Guy L.....497 St. Antoine, Detroit, Mich.	
1890	Kiefer, Hermann.....89 E. Forest Ave., Detroit, Mich.	
1877	*Kieffer, Stephen B.....	Carlisle, Pa.
1889	*Kimball, Arthur H. (*1894).....	Battle Creek, Mich.
1888	Kinch, Charles A.....273 W. 70th, New York, N. Y.	
1889	King, Alfred.....610 Congress, Portland, Me.	
1899	King, Wm. H.....6315 McCallum, Philadelphia, Pa.	
1899	Kinsman, David N.....	Vendome Hotel, Columbus, O.
1905	Kirtley, Howard P.....	Cook Co. Hospital, Chicago, Ill.
1905	Klebs, Arnold C.....100 State, Chicago, Ill.	
1886	Kline, W. J. K.....	Greensburg, Pa.
1892	Knapp, Charles P.....	Wyoming, Pa.
1898	Knight, Charles A.....	Peekskill, N. Y.
1889	Knight, Charles H.....147 W. 57th, New York, N. Y.	
1897	Knopf, Sigmund A.....16 W. 95th, New York, N. Y.	
1888	*Knox, James S. (*1892).....	Chicago, Ill.
1893	Knox, Samuel B. P.....912 Anacapa, Santa Barbara, Cal.	
1884	*Kollock, Cornelius (*1897).....	Cheraw, S. C.
1889	Kreider, George N.....522 Capitol Ave., Springfield, Ill.	
1897	Kunkel, George B.....	Harrisburg, Pa.
1903	Kunkel, Henry.....	Kingston, Pa.
1899	Kyle, D. Braden.....1517 Walnut, Philadelphia, Pa.	
1889	Kynett, Harold H.....614 S. 48th, Philadelphia, Pa.	
1896	*Lackersteen, Mark H. (*1897).....	Chicago, Ill.
1898	LaForce, Wm. B.....	Ottumwa, Ia.
1882	*Landis, Henry G. (*1886).....	Columbus, O.
1889	Landon, Henry B.....6 Fay Block, Bay City, Mich.	
1905	Lane, Francis A.....905 Venetian Bldg., Chicago, Ill.	
1905	Langfitt, Wm. S.....512 Bijou Bldg., Penn. Ave., Pittsburg, Pa.	
1892	Lansing, James B. W.....	Tenafly, N. J.
1890	Laplace, Ernest.....1828 Rittenhouse Sq., Philadelphia, Pa.	
1876	*Larison, George H. (*1892).....	Lambertville, N. J.
1891	*Lash, Josiah W. (*1902).....	Chillicothe, O.
1879	*Lathrop, Horace (*1905).....	Cooperstown, N. Y.
1897	Lathrop, Ruth W.....1415 N. 17th, Philadelphia, Pa.	
1901	Leach, Sydney.....	Tuscaloosa, Ala.
1879	Leaman, Henry.....832 N. Broad, Philadelphia, Pa.	

* Deceased.

Date of election.	Name.	Residence.
1888	Learned, Wm. T.....42	Franklin, Fall River, Mass.
1877	Lee, Benjamin.....	Department of Health, Harrisburg, Pa.
1880	*Lee, Charles C. (*1893).....	New York, N. Y.
1901	LeFevre, Egbert.....52	W. 56th, New York, N. Y.
1894	Leffmann, Henry.....119	S. 4th, Philadelphia, Pa.
1901	Leighton, Charles M.....365	Congress, Portland, Me.
1894	Leland, George A.....669	Boylston, Boston, Mass.
1905	Lensman, Frederick A.....100	State, Chicago, Ill.
1879	*Lente, Frederick D. (*1883).....	New York, N. Y.
1905	Leonard, Henry S.....1203	E. 19th, Indianapolis, Ind.
1903	Leopold, Isaac.....1518	N. Franklin, Philadelphia, Pa.
1888	Lester, John C.....179	Schermerhorn, Brooklyn, N. Y.
1884	*Levis, Richard J. (*1890).....	Philadelphia, Pa.
1893	Lewis, Albert B.....	Hamilton, Kas.
1889	Lewis, Charles H.....301	Forest, Jackson, Mich.
1890	Lewis, Daniel.....616	Madison Ave., New York, N. Y.
1887	Lewis, Edwin R.....1866	Wyoming Ave., Washington, D. C.
1897	Lewis, Henry F.....4426	Lake Ave., Chicago, Ill.
1891	Lewis, James R.....	Grinnell, Ia.
1905	Lewis, Thomas H.....251	Dearborn Ave., Chicago, Ill.
1897	Lichty, John A.....4634	5th Ave., Pittsburg, Pa.
1905	Lieberthal, David.....103	State, Chicago, Ill.
1902	Lincoln, James O.....	Bath, Me.
1881	*Lincoln, Nathan S. (*1898).....	Washington, D. C.
1883	*Lincoln, Rufus P. (*1900).....	New York, N. Y.
1877	*Lindsley, J. Berien (*1897).....	Nashville, Tenn.
1890	Lippincott, James A.....435	Penn Ave., Pittsburg, Pa.
1902	Littig, Lawrence W.....	First National Bank Bldg., Iowa City, Ia.
1882	*Little, Wm. S. (*1887).....	Philadelphia, Pa.
1893	Littlefield, George H.....361	Neponset Ave., Boston, Mass.
1902	Lobingier, A. Stewart..	608 Herman W. Hellman's Bldg., Los Angeles
1897	Loeb, Hanan W....	care St. Louis Medical Library Association, Y. M. C. A. Bldg., St. Louis, Mo.
1885	Logan, Harry V.....306	N. Washington, Scranton, Pa.
1893	Longsdorf, Harold H.....	Dickinson, Pa.
1897	Lott, Wm. C.....4001	Walnut, Philadelphia, Pa.
1878	*Love, John J. H. (*1897).....	Montclair, N. J.
1896	*Ludlow, Edmund (*1903).....	Paxton, Ill.
1902	Lybolt, Archibald.....280	W. 127th, New York, N. Y.
1881	*Lyman, Henry M. (*1904).....	Chicago, Ill.
1879	Lyons, Frederick A.....50	E. 63rd, New York, N. Y.

* Deceased.

Date of election.	Name.	Residence.
1884	McArdle, Thomas E.....	1604 19th, N. W., Washington, D. C.
1901	McBride, James H.....	Pasadena, Cal.
1881	*McBride, Thomas A. (*1886).....	New York, N. Y.
1889	McCaskey, George W.....	107 W. Main, Fort Wayne, Ind.
1897	McClintock, Charles T.....	270 Woodward Ave., Detroit, Mich.
1888	McCollister, Elisha A.....	Lewistown, Me.
1894	McCulloch, C. Carter.....	U. S. A.
1892	*McCulloch, J. T. (*1904).....	Freeport, Pa.
1898	McDonnell, Ralph A.....	1142 Chapel, New Haven, Conn.
1901	McDonough, Edward J.....	624 Congress, Portland, Me.
1901	McGaughy, Hugh F.....	216 Centre, Winona, Minn.
1877	McIntire, Charles.....	52 N. 4th, Easton, Pa.
1888	McKenna, T. M. T.....	1112 Bessemer Bldg., Pittsburg, Pa.
1878	McKenzie, Wm.....	Conshohocken, Pa.
1884	McMurtry, Louis S.....	1912 6th, Louisville, Ky.
1905	McNeill, H. Iles.....	Newman, Ill.
1893	McNutt, H. E.....	Aberdeen, S. D.
1892	McWilliams, Samuel A.....	3456 Michigan Ave., Chicago, Ill.
1905	Mac Chesney, Wm. N....	1620 Otto Boul., Chicago Heights, Ill.
1889	*MacDonnell, R. Lea (*1891).....	Montreal, Canada.
1901	*Machan, George S. (*1901).....	Providence, R. I.
1898	MacLaren, Wm. S.....	Litchfield, Conn.
1905	Maclay, Otis H.....	6412 Greenwood Ave., Chicago, Ill.
1900	Magill, Wm. S.....	5 Sommer Strasse, Berlin N. W. 7, Germany.
1887	Magruder, George L....	815 Vermont Ave., N. W., Washington, D. C.
1889	Major George W.....	"Mozufferpore," East Liss, Hants, England.
1897	Makuen, G. Hudson.....	1627 Walnut, Philadelphia, Pa.
1897	Manges, Morris.....	941 Madison Ave., New York, N. Y.
1889	Marble, John O.....	55 Pearl, Worcester, Mass.
1897	Matchand, Jacob F.....	133 N. Cleveland Ave., Canton, O.
1879	Marcy, Henry O.....	180 Commonwealth Ave., Boston, Mass.
1900	Marcy, Henry O., Jr.....	180 Commonwealth Ave., Boston, Mass.
1905	Marquis, George P.....	103 State, Chicago, Ill.
1889	Marshall, Cuvier R.....	876 Jefferson Ave., Detroit, Mich.
1889	Marshall, George M.....	1819 Spruce, Philadelphia, Pa.
1885	Marshall, George W.....	Milford, Del.
1899	Marshall, John S.....	U. S. A. Presidio, San Francisco, Cal.
1895	Martin, Francis C.....	27 Dudley St., Roxbury, Boston, Mass.
1891	Martin, James Nelson.....	Los Angeles, Cal.
1885	*Maryott, E. Edgar (*1904).....	Springfield, Mass.
1891	*Mason, Jarvis K. (*1905).....	Suffield, Conn.

* Deceased.

Date of election.	Name.	Residence.
1888	Mason, Wm. C.....	Bangor, Me.
1895	Massie, Joseph P.....17	E. Grace, Richmond, Va.
1889	Matthews, F. M.....	
1897	Matthews, George S.....419	Cranston, Providence, R. I.
1879	Mathewson, Arthur.....139	Montague, Brooklyn, N. Y.
1890	Matzinger, Herman G.....519	Franklin, Buffalo, N. Y.
1890	Maurer, James M.....502	E. Sunbury, Shamokin, Pa.
1897	May, Charles H.....698	Madison Ave., New York, N. Y.
1890	Mayberry, Charles B.....	Retreat, Pa.
1904	Mayer, Edward E.....524	Penn Ave., Pittsburg, Pa.
1899	Medbery, Josiah.....31	E. Chestnut, Columbus, O.
1877	Meisenholder, Edmund W.....320	W. Market, York, Pa.
1889	Merriman, Henry P.....2239	Michigan Ave., Chicago, Ill.
1889	Merritt, Emma S.....2323	Washington, San Francisco, Cal.
1892	Merz, Charles H.....	Sandusky, O.
1898	Metcalf, Henry S.....	Mt. Carroll, Ill.
1891	Mettler, L. Harrison.....4544	Lake Ave., Chicago, Ill.
1892	*Meyer, J. M. (*1901).....	Danville, Ky.
1890	Mial, Leonidas L.....139	W. 12th, New York, N. Y.
1904	Michler, H. D.....134	N. 3rd, Easton, Pa.
1903	Milan, Michael B.....26	Bainbridge, Providence, R. I.
1883	Miles, George W.....	Oneida, N. Y.
1889	*Millard, Henry B. (*1893).....	New York, N. Y.
1904	Miller, Ansel I.....	Hooker Block, Brattleboro, Vt.
1904	Miller, DeWitt C. R.....	Mason and Dixon, Pa.
1881	Miller, Horace G.....262	Benefit, Providence, R. I.
1905	Miller, Joseph L.....100	State, Chicago, Ill.
1905	Miller, S. M.....701	Main, Peoria, Ill.
1897	Miller, Walter McN.....	University of Missouri, Columbia, Mo.
1889	Mills, Hiram R.....	Soldiers Home, Grand Rapids, Mich.
1884	*Miner, Joshua L. (*1889).....	Wilkes-Barre, Pa.
1885	Mitchell, Alfred.....	Brunswick, Me.
1905	Mitchell, Alfred, Jr.....	Y. M. C. A. Bldg., Portland, Me.
1879	*Mitchell, Chauncey L. (*1888).....	Brooklyn, N. Y.
1892	*Mitchell, Giles S. (*1904).....	Cincinnati, O.
1892	Mitchell, Matthew R.....605	Kansas Ave., Topeka, Kas.
1903	Mix, Charles L.....103	State, Chicago, Ill.
1897	Montgomery, Edward E.....1703	Walnut, Philadelphia, Pa.
1901	Moore, Hugh M.....	Oxford, O.
1882	*Moore, J. Fred (*1893).....	Brooklyn, N. Y.
1878	Moore, James W.....	Easton, Pa.

* Deceased. ‡ Address not known.

Date on election.	Name.	Residence.
1890	Moore, John H.....	Bridgeton, N. J.
1884	*Morehouse, George R. (*1905).....	Philadelphia, Pa.
1889	Morris, Elliston J.....	128 S. 18th, Philadelphia, Pa.
1880	Morris, J. Cheston.....	1514 Spruce, Philadelphia, Pa.
1899	Morris, J. W.....	Fenton Bldg., Jamestown, N. Y.
1883	Morrow, Prince A.....	66 W. 40th, New York, N. Y.
1884	*Morton, Douglas (*1892).....	Louisville, Ky.
1880	*Morton, Lloyd (*1888).....	Pawtucket, R. I.
1881	Morton, William J.....	19 E. 28th, New York, N. Y.
1889	Moses, Thomas F.....	Waltham, Mass.
1901	Mott, John S.....	517 Rialto Bldg., Kansas City, Mo.
1904	Motter, M. G.....	1841 Summit Ave., Washington, D. C.
1897	Moulton, Albert R.....	49th and Market, Philadelphia, Pa.
1894	*Moulton, Charles F. (*1906).....	West Roxbury, Mass.
1905	Moulton, Willis B.....	692 Congress, Portland, Me.
1882	*Muhlenberg, Francis (*1894).....	Lancaster, Pa.
1892	Muhlenberg, Wm. F.....	34 Fifth, Reading, Pa.
1882	*Mulford, Isaac B. (*1883).....	Camden, N. J.
1889	*Mulhall, Joseph C. (*1900).....	St. Louis, Mo.
1905	Munro, John C.....	173 Beacon, Boston, Mass.
1902	Munson, George S.....	30 Eagle, Albany, N. Y.
1900	Murray, Wm. R.....	602 Nicollet Ave., Minneapolis, Minn.
1890	Musser, Charles S.....	Aaronsburgh, Pa.
1905	Myers, Edward M.....	722 Story, Boone, Ia.
1902	Mynderse, Herman V.....	Schenectady, N. Y.
1897	Nancrede, Charles B.....	720 S. University Ave., Ann Arbor, Mich.
1888	Needham, George G.....	218 E. 19th, New York, N. Y.
1903	Neff, Wallace.....	1337 K, N. W., Washington, D. C.
1882	Nelson, Daniel T.....	2400 Indiana Ave., Chicago, Ill.
1889	Nelson, Edwin M.....	965 Hamilton Ave., St. Louis, Mo.
1884	*Nelson, Samuel N. (*1893).....	Revere, Mass.
1898	Newcomb, James E.....	118 W. 69th, New York, N. Y.
1879	*Newcomet, Henry W. (*1885).....	Philadelphia, Pa.
1900	Newhart, Horace.....	837 Andrus Bldg., Minneapolis, Minn.
1897	Newman, Henry P.....	438 LaSalle Ave., Chicago, Ill.
1895	Newton, Edwin D.....	Athens, Ga.
1889	*Nichol, Wm. L. (*1901).....	Nashville, Tenn.
1905	Nichols, Roscoe T.....	Liberal, Kas.
1895	Niesley, Charles M.....	Manhasset, N. Y.
1900	Nisbet, James D.....	34 W. 50th, New York, N. Y.
1890	Noble, Henry S.....	Middletown, Conn.

* Deceased.

Date of election.	Name.	Residence.
1901	Noble, Mary R.....	1611 N. Mesa, Colorado Springs, Colo.
1888	O'Brien, Charles C.....	Groveton, N. H.
1888	O'Donovan, Charles, Jr.....	10 E. Read, Baltimore, Md
1880	*O'Leary, Charles (*1897).....	Providence, R. I
1894	O'Neill, James B.....	519 Congress, Portland, Me
1885	Oakes, Wallace K.....	60 High, Auburn, Me.
1903	Ogle, Wm. M.....	Primero, Colo
1898	Olds, Frank W.....	Williamstown, Mass.
1894	Oliver, Charles A.....	1507 Locust, Philadelphia, Pa
1898	Osborn, George W.....	888 Broad, Bridgeport, Conn.
1885	*Osgood, Wm. (*1894).....	North Yarmouth, Me.
1884	Otis, Edward O.....	381 Beacon, Boston, Mass.
1878	Ott, Isaac.....	18 N. 4th, Easton, Pa.
1889	Overfield, Adam.....	Houghton, Mich.
1885	Packard, Charles A.....	Bath, Me.
1888	*Packard, Frederick A. (*1902)....	258 S. 18th, Philadelphia, Pa.
1889	Packard, John H.....	1924 Spruce, Philadelphia, Pa.
1889	*Page, H. R (*1891).....	Des Moines, Ia.
1897	Paine, Arthur R.....	211 Lafayette Ave., Brooklyn, N. Y.
1879	*Pancoast, Wm. H. (*1897).....	Philadelphia, Pa.
1888	*Park, John G. (*1905).....	Worcester, Mass.
1897	Parker, Wallace A.....	Springfield, Mass.
1898	Partree, Homer T.....	Eatontown, N. J.
1880	*Parvin, Theophilus (*1898).....	Philadelphia, Pa.
1889	Patterson, E. Blanchard.....	Manistique, Mich.
1903	Patterson, Stuart.....	5541 Ellsworth Ave., Pittsburg, Pa.
1883	Patzki, Julius H.....	U. S. A. (Retired).
1899	Pease, Edward A.....	479 Beacon, Boston, Mass.
1891	Peck, George.....	926 N. Broad, Elizabeth, N. J.
1898	Peck, George B.....	865 Main, Providence, R. I.
1895	Peckham, Frank E.....	53 Governor, Providence, R. I.
1898	*Pegram, John C., Jr. (*1906).....	Providence, R. I.
1901	Penrose, Clement A.....	21 W. Mt. Royal Ave., Baltimore, Md.
1889	Penrose, Charles B.....	1720 Spruce, Philadelphia, Pa.
1882	*Pepper, Wm. (*1898).....	Philadelphia, Pa.
1880	Perkins, Francis M.....	1428 Pine, Philadelphia, Pa.
1882	Perry, Charles H.....	900 Main, Worcester, Mass.
1891	Peterson, Reuben.....	Ann Arbor, Mich.
1905	Phillips, Charles E.....	Ancon (Canal Zone), Panama.
1892	Phillips, Ellis.....	347 E. Long, Columbus, O.
1892	Phillips, G. W.....	Vinal Haven, Me.

* Deceased.

Date of election.	Name.	Residence.
1897	*Phillips, Thomas H. (*1902).....	Canton, O.
1891	*Phillips, Wm. W. L. (*1896).....	Trenton, N. J.
1882	Pickett, Thomas E.....	213 Wall, Maysville, Ky.
1895	Pilcher, James Evelyn.....	Carlisle, Pa.
1879	Pilcher, Lewis S.....	145 Gates Ave., Brooklyn, N. Y.
1879	*Pinkney, Howard (*1888).....	New York, N. Y.
1898	Platt, Walter B.....	802 Cathedral, Baltimore, Md.
1904	Pleasants, J. Hall.....	16 W. Chase, Baltimore, Md.
1897	Plummer, Charles G.....	Mercantile Block, Salt Lake City, Utah.
1905	Plummer, Samuel C.....	4539 Oakenwald Ave., Chicago, Ill.
1892	Pontius, Paul J.....	1829 Chestnut, Philadelphia, Pa.
1882	Porter, George L.....	266 State, Bridgeport, Conn.
1880	Porter, George W.....	8 Greene, Providence, R. I.
1885	Post, M. Hayward.....	2641 Washington Ave., St. Louis, Mo.
1897	Post, Silas B.....	222 N. Cleveland Ave., Canton, O.
1904	Pottenger, Francis M.....	Monrovia, Cal.
1900	Powell, Wm. M.....	122 W. Miner St., West Chester, Pa.
1905	Powers, George H.....	533 Sutter, San Francisco, Cal.
1888	*Pratt, H. D. V., Jr. (*1899).....	Elmira, N. Y.
1905	Preble, Robert B.....	103 State, Chicago, Ill.
1888	Presbrey, Silas D.....	103 Weir, Taunton, Mass.
1903	Price, Henry R.....	163 Hancock, Brooklyn, N. Y.
1890	Prince, Arthur E.....	Springfield, Ill.
1897	Probasco, John B.....	175 E. Front, Plainfield, N. J.
1894	Pudor, Gustave A.....	134 Free, Portland, Me.
1893	Puls, Arthur J.....	1217 Wells Bldg., Milwaukee, Wis.
1898	Pulsford, Henry A.....	139 S. Orange Ave., South Orange, N. J.
1904	Purinton, Lester G.....	Yarmouth, Me.
1894	Putman, Harry L.....	Houlton, Me.
1892	Putman, Helen C.....	Providence, R. I.
1895	Pyle, Walter L.....	1806 Chestnut, Philadelphia, Pa.
1888	Rae, Alexander.....	117 Henry St., Brooklyn, N. Y.
1889	*Ranney, Ambrose L. (*1905).....	New York, N. Y.
1897	Ravogli, Augustus.....	5 Garfield Place, Cincinnati, O.
1877	*Rea, James C. (*1886).....	Pittsburg, Pa.
1884	*Read, Ira B. (*1897).....	New York, N. Y.
1889	Reddy, Herbert L.....	999 Dorchester, Montreal, Canada.
1905	Reed, Edward N.....	Cook Co. Hospital, Chicago, Ill.
1882	*Reed, Joseph A. (*1884).....	Dixmont, Pa.
1897	Reed, Robert J.....	73 12th, Wheeling, W. Va.
1882	*Reed, Thomas B. (*1891).....	Philadelphia, Pa.
1900	Reed, W. Boardman.....	1833 Chestnut, Philadelphia, Pa.

* Deceased.

Date of election.	Name.	Residence.
1888	Reed, Wm. G.	Southbridge, Mass.
1889	Reeve, Richard A.	22 Shuter, Toronto, Canada.
1900	Reiley, Edward A.	20 S. Tennessee, Atlantic City, N. J.
1879	*Reiley, George W. (*1892)	Harrisburg, Pa.
1888	*Rex, George A. (*1895)	Philadelphia, Pa.
1905	Rhodes, Ora M.	Bloomington, Ill.
1888	Rice, Wm. E.	Bath, Me.
1888	*Rich, Josuha B. (*1896)	Worcester, Mass.
1896	Richardson, Maurice H.	224 Beacon, Boston, Mass.
1891	Rider, Wheelock.	53 S. Fitzhugh, Rochester, N. Y.
1885	*Ring, Charles A. (*1903)	Portland, Me.
1888	*Ring, Frank W. (*1896)	New York, N. Y.
1899	Risley, Samuel D.	1728 Chestnut, Philadelphia, Pa.
1898	Ritchie, Harry P.	105 Lowry Arcade, St. Paul, Minn.
1894	Robbins, James E.	Danville, Pa.
1879	Roberts, John B.	313 S. 17th, Philadelphia, Pa.
1903	Roberts, Walter.	33 S. 19th, Philadelphia, Pa.
1885	Robinson, Daniel A.	142 Hammond, Bangor, Me.
1892	Robinson, R.	East Brady, Pa.
1884	Robison, John A.	152 Kenesaw Terrace, Chicago, Ill.
1897	Roche, C. Percy de la.	1518 Pine, Philadelphia, Pa.
1893	Rochester, DeLancey.	469 Franklin, Buffalo, N. Y.
1879	Rockwell, Alphonso D.	The Sydenham 58th and Madison Ave., New York, N. Y.
1891	Rogers, Arthur C.	Faribault, Minn.
1897	Rogers, Daniel W.	2204 Michigan Ave., Chicago, Ill.
1897	Rogers, Frederick T.	117 Broad, Providence, R. I.
1898	Rogers, John B.	North Bloomfield, Cal.
1895	*Rohe, George H. (*1899)	Sykesville, Md.
1878	Roosa, Daniel B. St. J.	20 E. 30th, New York, N. Y.
1897	Rothrock, John L.	235 Lowry Arcade, St. Paul, Minn.
1899	Ruddick, Wm. H.	502 E. Broadway, South Boston, Mass.
1904	Ruhrh, John.	847 N. Eutaw, Baltimore, Md.
1889	Rutherford, Clarendon.	646 Fullerton Ave., Chicago, Ill.
1878	*Ryerson, Thomas (*1887)	Newton, N. J.
1889	*Salisbury, James N. (*1898)	Russellville, O.
1878	*Sandt, John (*1889)	Easton, Pa.
1879	*Sanford, Leonard J. (*1896)	New Haven, Conn.
1878	Santee, Eugene I.	532 N. 6th, Philadelphia, Pa.
1891	Sargent, Dudley A.	Hemenway Gymnasium, Cambridge, Mass.
1891	Sartain, Paul J.	212 W. Logan Square, Philadelphia, Pa.

* Deceased.

Date of election.	Name.	Residence.
1889	Satterthwaite, Thomas E	7 E. 80th, New York, N. Y.
1898	Savage, Watson L.	308 W. 59th, New York, N. Y.
1890	Sayre, Reginald H.	9 E. 45th St., New York, N. Y.
1889	Schauffler, Edward W.	900 Walnut, Kansas City, Mo.
1901	Schauffler, Wm. G.	Lakewood, N. J.
1892	Scheel, A. M.	Belleville, Ill.
1878	Schenck, Peter L.	60 St. Mark's Ave., Brooklyn, N. Y.
1882	*Schenck, Tunis (*1899).	Bath Beach, N. Y.
1905	Schiller, Heliodor.	42 E. 39th, Chicago, Ill.
1898	Schneideman, Theodore B.	112 S. 18th, Philadelphia, Pa.
1905	Schofield, Joseph R.	Spirit Lake, Ia.
1877	Schoonover, Warren.	115 E. 59th, New York, N. Y.
1877	*Schultz, Solomon S. (*1891).	Danville, Pa.
1895	Schweinitz, George E. de.	1705 Walnut, Philadelphia, Pa.
1890	Schwenk, Peter N. K.	810 N. 7th, Philadelphia, Pa.
1878	Scott, J. McPherson.	129 W. Washington, Hagerstown, Md.
1882	Scott, Xenophon C.	127 Euclid Ave., Cleveland, O.
1888	Scribner, Ernest V.	Box 1178, Worcester, Mass.
1888	Seamans, Wm. S.	120 Broadway, New York, N. Y.
1896	Searcy, J. T.	Tuscaloosa, Ala.
1897	Sechrist, Cora S.	176 Euclid Ave., Cleveland, O.
1882	*Seely, W. W. (*1903).	Cincinnati, O.
1876	Sell, Edward H. M.	Summit, N. J.
1903	Sewall, Henry.	Majestic Bldg., Denver, Colo.
1884	*Shakespeare, Edward O. (*1900).	Philadelphia, Pa.
1895	Shannon, John R.	Cabaniss, Ga.
1877	*Shapleigh, Elisha B. (*1892).	Philadelphia, Pa.
1885	Shapleigh, John B.	3621 Washington Ave., St. Louis, Mo.
1896	Shastid, Thomas H.	Harrisburg, Ill.
1905	Shaw, Thomas B.	47 Pleasant, Worcester, Mass.
1886	Shaw, Wm. C.	1009 Wylie Ave., Pittsburg, Pa.
1877	*Shearer, James M. (*1881).	Dillsburg, Pa.
1890	Shearer, Niles H.	York, Pa.
1882	Sheldon, Charles S.	Madison, Wis.
1901	Sheldon, H. W.	Negaunee, Mich.
1904	Shelton, G. A.	40 White, Shelton, Conn.
1897	Sheppard, John E.	130 Montague, Brooklyn, N. Y.
1905	Sherman, Harry M.	1303 Van Ness Ave., San Francisco, Cal.
1903	Sherrer, H. Straub.	Bangor, Pa.
1889	Sherrill, Edwin S.	270 Woodward Ave., Detroit, Mich.
1902	Shimer, Ira A.	U. S. A.

* Deceased.

Date of election.	Name.	Residence.
1878	Shoemaker, John V.....	1519 Walnut, Philadelphia, Pa.
1890	Shoemaker, Levi I.....	59 S. Franklin, Wilkes-Barre, Pa.
1878	Shrady, George F.....	8 E. 66th, New York, N. Y.
1878	Shrady, John.....	140 W. 126th, New York, N. Y.
1897	Shurly, Burt R.....	544 Jefferson Ave., Detroit, Mich.
1876	*Sibbet, Robert L. (*1898).....	Carlisle, Pa.
1899	Silver, Edward V.....	9 Mercantile Bldg., Salt Lake City, Utah.
1890	*Simmons, Arthur R. (*1904).....	Utica, N. Y.
1889	Simmons, Charles E.....	762 Madison Ave., New York, N. Y.
1905	Simmons, George H.....	103 Dearborn Ave., Chicago, Ill.
1897	Simmons, Warren S., Jr.....	338 Lafayette Ave., Brooklyn, N. Y.
1888	Simmons, Wm. H.....	Bangor, Me.
1897	Simon, Charles E.....	1302 Madison Ave., Baltimore, Md.
1888	Simpson, Frederic T.....	122 High, Hartford, Conn.
1890	*Sinne, H. H. (*1891).....	Trenton, N. J.
1905	*Skelton, Leonard L. (*1906).....	Chicago, Ill.
1905	Slaymaker, Samuel R.....	100 State, Chicago, Ill.
1890	Sleeper, Frank E.....	Sabattus, Me.
1892	Sloan, Henry H.....	684 Washington Boul., Chicago, Ill.
1886	*Sloan, James G. (*1897).....	Monongahela City, Pa.
1903	Small, Edward H.....	Penn and Negley Ave., Pittsburgh, Pa.
1888	Small, Freeman E.....	198 High, Portland, Me.
1878	*Smith, Albert H. (*1885).....	Philadelphia, Pa.
1889	Smith, A. Laphorn.....	250 Bishop, W., Montreal, Canada.
1888	Smith, Andrew R. G.....	North Whitefield, Me.
1893	Smith, Bryant.....	136 Wisconsin, Milwaukee, Wis.
1888	Smith, Charles D.....	126 Free, Portland, Me.
1880	*Smith, Charles G. (*1894).....	Chicago, Ill.
1898	Smith, Edward W.....	34 W. Main, Meriden, Conn.
1891	*Smith, George E. (*1905).....	Oberlin, O.
1895	Smith, Henry H.....	43 Elm, New Haven, Conn.
1891	Smith, Joseph R., U. S. A.....	2300 DeLancey Place, Philadelphia, Pa.
1883	Smith, Thomas J.....	32 W. Commerce, Bridgeton, N. J.
1888	Smith, Thomas P.....	Westbrook, Me.
1889	Smith, Wm. H.....	Shell Rock, Ia.
1882	Smith, Wm. T.....	Hanover, N. H.
1891	Smock, Ledru P.....	3330 Chestnut, Philadelphia, Pa.
1897	Snipe, Langdon T.....	Bath, Me.
1893	Snively, I. Newton.....	1617 N. Broad, Philadelphia, Pa.
1879	*Snively, Joseph C. (*1885).....	Brooklyn, N. Y.
1879	*Snow, Edwin M. (*1888).....	Providence, R. I.

* Deceased.

Date of election.	Name.	Residence.
1900	Snyder, Thomas.....	1919 Main, Niagara Falls, N. Y.
1901	Somerville, Wm. G.....	Tuscaloosa, Ala.
1895	Southard, Wm. F.....	121 Geary, San Francisco, Cal.
1904	Spalding, Fred M.....	177 Bay State Road, Boston, Mass.
1885	Spalding, James A.....	627 Congress, Portland, Me.
1881	*Spare, John (*1901).....	New Bedford, Mass.
1899	Spaulding, Frank W.....	Clifton Springs, N. Y.
1892	*Speed, J. N. (*1900).....	Rushville, Ill.
1905	Speed, Kellogg.....	100 State, Chicago, Ill.
1891	Springer, Willard.....	810 Washington, Wilmington, Del.
1905	Stacey, Harley J.....	22 Ryan Bldg., Leavenworth, Kas.
1878	Stahley, George D.....	Gettysburg, Pa.
1888	Stanwood, Robert G.....	117 N. 6th, Newark, N. J.
1905	Stanton, Samuel C.....	1040 Sheridan Road, Chicago, Ill.
1889	Staples, George Allen.....	Bank and Insurance Bldg., Dubuque, Ia.
1889	*Staples, George M. (*1895).....	Dubuque, Ia.
1894	Staples, Henry L.....	Syndicate Block, Minneapolis, Minn.
1904	*Stearns, H. P. (*1905).....	Hartford, Conn.
1897	Stein, Simon G.....	Muscatine, Ia.
1876	*Steiner, Lewis H. (*1892).....	Baltimore, Md.
1902	Steiner, Walter R.....	4 Trinity, Hartford, Conn.
1884	Stellwagen, Thomas C.....	1809 Chestnut, Philadelphia, Pa.
1904	Sternberger, Edwin.....	43 E. 60th, New York, N. Y.
1883	*Stevens, Charles W. (*1901).....	Charlestown, Mass.
1903	Stevens, Cyrus L.....	Athens, Pa.
1905	Stevens, James F.....	1136 O., Lincoln, Neb.
1884	*Stevenson, J. M. (*1896).....	Pittsburg, Pa.
1902	Stevenson, Michael D.....	51 S. Ferry, Albany, N. Y.
1895	Stewart, Wm. B.....	Cor. North Carolina and Pacific Aves., Atlantic City, N. J.
1876	*Stewart, Wm. S. (*1903).....	Philadelphia, Pa.
1883	Stoddard, E. V.....	68 S. Washington, Rochester, N. Y.
1904	Stone, B. H.....	196 Main, Burlington, Vt.
1889	Stone, Wm. G.....	Montclair, N. J.
1892	*Storer, Samuel T. (*1902).....	New Concord, O.
1900	Stout, George C.....	1611 Walnut, Philadelphia, Pa.
1892	Stout, Joseph.....	Ottawa, Ill.
1877	*Strawbridge, James D. (*1890).....	Danville, Pa.
1905	Streeter, Edward C.....	2642 Calumet Ave., Chicago, Ill.
1897	Strickler, Arbaham H.....	Waynesboro, Pa.
1897	*Strong, Norton (*1903).....	U. S. A.

* Deceased.

Date of election.	Name.	Residence.
1889	Strong, Thomas D.....	Westfield, N. Y.
1879	Stuart, Francis H.....	123 Joralemon, Brooklyn, N. Y.
1877	Stubbs, George E.....	1616 Walnut, Philadelphia, Pa.
1898	Stuver, Emanuel.....	Fort Collins, Colo.
1900	Summa, Hugo.....	2249 St. Louis Ave., St. Louis, Mo.
1888	Swan, Charles E.....	Calais, Me.
1900	Swarts, Gardner T.....	70 Waterman, Providence, R. I.
1892	Swift, Elisha P.....	Norway, Mich.
1888	Swift, Wm. N.....	378 County, New Bedford, Mass.
1892	Sykes, Richard L.....	Columbus, Miss.
1883	Tadlock, A. B.....	Knoxville, Tenn.
1892	*Talley, Alexander N. (*1897).....	Columbia, S. C.
1895	Taneyhill, George L.....	1103 Madison Ave., Baltimore, Md.
1889	Tappey, Ernest T.....	270 Woodward Ave., Detroit, Mich.
1898	Taylor, Henry L.....	125 W. 58th, New York, N. Y.
1897	Taylor, Hugh M.....	6 N. 5th, Richmond, Va.
1889	Taylor, James L.....	20 North Ave., E., Atlanta, Ga.
1894	Taylor, J. Madison.....	1504 Pine, Philadelphia, Pa.
1878	*Taylor, Wm. F. (*1887).....	Philadelphia, Pa.
1878	*Thacker, John A. (*1891).....	Cincinnati, O.
1889	Thayer, Addison S.....	730 Congress, Portland, Me.
1892	Thayer, H. W.....	Netcong, N. J.
1878	Thomas, James C.....	107 W. 47th, New York, N. Y.
1888	Thombs, Samuel B.....	121 Spring, Portland, Me.
1890	Thompson, George E.....	599 Tremont, Boston, Mass.
1889	Thompson, John F.....	601 Congress, Portland, Me.
1903	Thompson, Wm. S.....	Standish, Me.
1897	Thomson, Archibald G.....	1426 Walnut, Philadelphia, Pa.
1897	Thomson, Wm.....	1436 Walnut, Philadelphia, Pa.
1897	*Thorner, Max (*1899).....	Cincinnati, O.
1886	Thrasher, A. B.....	7th and Race, Cincinnati, O.
1901	Tiffany, Frank M.....	Stamford, Conn.
1905	Timberman, Andrew.....	112 E. Broad, Columbus, O.
1898	Tinker, Martin B.....	Clifton Springs, N. Y.
1883	*Todd, Wm. S. (*1893).....	Ridgefield, Conn.
1888	Tolman, Julia.....	695 Massachusetts Ave., Arlington, Mass.
1901	Tomlinson, Henry A.....	St. Peter, Minn.
1892	Tomlinson, Joseph.....	Bridgeton, N. J.
1904	Torek, Franz J. A.....	59 E 60th, New York, N. Y.
1894	Totman, David M.....	303 Montgomery, Syracuse, N. Y.
1905	Tower, John B.....	Hibbing, Minn.

* Deceased.

Date of election.	Name.	Residence.
1877	Treichler, C. Galen.....	Honey Brook, Pa.
1897	Tressel, John H.....	239 E. Main, Alliance, O.
1888	Trowbridge, Edward H.....	54 Pleasant, Worcester, Mass.
1890	Trowbridge, Grosvenor R.....	1349 Main, Buffalo, N. Y.
1888	Tucker, Edward T.....	258 Pleasant, New Bedford, Mass.
1902	Tucker, Willis G.....	4 Lancaster, Albany, N. Y.
1902	*Tuckerman, Louis B. (*1902).....	Cleveland, O.
1879	Turnbull, Charles S.....	1935 Chestnut, Philadelphia, Pa.
1903	Turner, Charles P.....	1506 Walnut, Philadelphia, Pa.
1880	*Turner, Joseph M. (*1898).....	Brooklyn, N. Y.
1897	Turner, Oliver W.....	Augusta, Me.
1891	Turner, Sylvester W.....	Chester, Conn.
1884	*Turner, Thomas J. (*1901).....	Coldwater, Mich.
1893	Tuttle, Albert H.....	735 Main, Cambridge, Mass.
1898	Tuttle, George M.....	49 W. 38th, New York, N. Y.
1901	*Tyler, George E. (*1902).....	Denver, Colo.
1897	*Ulrich, Charles F. (*1903).....	Wheeling, W. Va.
1899	Upham, John H. J.....	106 E. Broad, Columbus, O.
1892	Vail, J. B.....	322 W. Market, Lima, O.
1897	Van Benschoten, Wm. C.....	63rd and Monroe Ave., Chicago, Ill.
1889	*Van Bibber, W. C. (*1892).....	Baltimore, Md.
1877	Vanderveer, John R.....	Monroe, N. Y.
1890	Van Dryn, John.....	318 James, Syracuse, N. Y.
1888	Van Hook, Weller.....	5759 Washington Ave., Chicago, Ill.
1891	Van Pelt, Charles L.....	Jefferson and 19th, Toledo, O.
1888	Van Santvoord, Richard.....	10 W. 122d, New York, N. Y.
1879	Van Valzah, W. W.....	40 E. 25th, New York, N. Y.
1891	Vaughan, Victor C.....	15 S. State, Ann Arbor, Mich.
1897	Veasy, Clarence A.....	1833 Chestnut, Philadelphia, Pa.
1890	*Vermynne, J. B. (*1898).....	Boston, Mass.
1905	Vincent, Thomas N.....	1221 N. N. W., Washington, D. C.
1882	VINTON, CHARLES H.....	Wernersville, Pa.
1892	Voldeng, M. Nelson.....	Hospital for the Insane, Cherokee, Ia.
1886	von Klein, Carl H.....	70 Bellevue Place, Chicago, Ill.
1878	*Wagner, Charles K. (*1898).....	Newark, N. J.
1905	Waite, Lucy.....	100 State, Chicago, Ill.
1888	Waldron, Martha M.....	Hampton, Va.
1889	Walk, James W.....	737 Corinthian Ave., Philadelphia, Pa.
1899	Walker, Gertrude A.....	308 S. 13th, Philadelphia, Pa.
1900	Walker, James B.....	1617 Greene, Philadelphia, Pa.
1888	Walker, John E.....	Thomaston, Me.

* Deceased. Name in SMALL CAPITALS has commuted dues by payment of \$30.

Date o election.	Name.	Residence.
1895	Walker, Samuel.....	100 Lincoln Park Boul., Chicago, Ill.
1902	Wall, Charles A.....	306 Hudson, Buffalo, N. Y.
1889	Ward, R. H.....	53 Fourth, Troy, N. Y.
1897	Warden, Carl C.....	133 N. Spruce, Nashville, Tenn.
1889	*Warner, Helen F. (*1905).....	Detroit, Mich.
1884	*Warren, Charles D. (*1889).....	Washington, D. C.
1888	Warren, Stanley P.....	99 Free, Portland, Me.
1892	Warren, Wadsworth.....	55 W. Fort, Detroit, Mich.
1905	Washburn, James M.....	15 Bellevue Place, Chicago, Ill.
1904	Watkins, Harris R.....	42 N. Winooski Ave., Burlington, Vt.
1884	Watson, Wm. P.....	35 Bentley Ave., Jersey City, N. J.
1905	Weatherson, John.....	103 State, Chicago, Ill.
1883	Weaver, Joseph K.....	612 DeKalb, Norristown, Pa.
1888	*Webster, Charles E. (*1892).....	Portland, Me.
1905	Webster, Ralph.....	100 State St., Chicago, Ill.
1888	*Weed, Charles L. (*1889).....	Philadelphia, Pa.
1902	Weeks, Stephen H.....	681 Congress, Portland, Me.
1884	*Weidman, W. M. (*1902).....	Reading, Pa.
1892	Weitz, Joseph A.....	Montpelier, O.
1897	Welch, John C.....	Bellevue, Pa.
1902	Welch, Stephen A.....	253 Washington, Providence, R. I.
1888	Wells, George M.....	Wayne, Pa.
1897	Wentworth, Wm. W.....	230 W. 65th, Chicago, Ill.
1895	Wentz, Alexander C.....	Hanover, Pa.
1888	Weston, Edward B.....	85 Dearborn, Chicago, Ill.
1905	Whalen, Charles J.....	34 Washington, Chicago, Ill.
1905	Wheeler, Frank R.....	Auburn, Ill.
1888	Wheeler, George A.....	Castine, Me.
1902	Wheeler, John B.....	210 Pearl, Burlington, Vt.
1898	WHEBLOK, Wm. E.....	Morristown, N. J.
1905	Wherry, James W.....	Dansville, N. Y.
1882	Whitbeck, J. F. Ward.....	209 East Ave., Rochester, N. Y.
1890	Whitcombe, Charles R.....	Hotel Pelham, Boston, Mass.
1903	White, S. Marx.....	627 12th Ave., S. E., Minneapolis, Minn.
1895	White, Wm. R.....	7 Greene, Providence, R. I.
1888	*Whitney, Adaline S. (*1896).....	Boston, Mass.
1882	*Whittaker, James T. (*1900).....	Cincinnati, O.
1899	Whittier, Francis F.....	Brookline, Mass.
1894	Whittier, Frank N.....	161 Maine, Brunswick, Me.
1877	*Wickes, Stephen (*1889).....	Orange, N. J.
1885	*Wight, Jarvis S. (*1901).....	Brooklyn, N. Y.

* Deceased. Name in SMALL CAPITALS has commuted dues by payment of \$20.

Date of election.	Name.	Residence.
1903	Wilbur, Ray L.....	Stanford University, Cal.
1889	Wilcox, Dorvil M.....	Falls Village, Conn.
1890	Wilcox, Reynold W.....	679 Madison Ave., New York, N. Y.
1905	Wilkinson, Wm. W.....	Box 87, Silverton, Colo.
1905	Williams, Arthur E.....	322 19th, Rock Island, Ill.
1888	Williams, A. O.....	Ottumwa, Ia.
1904	WILLIAMS, C. M.....	616 Madison Ave., New York, N. Y.
1902	Williams, Robert F.....	14 N. 3rd, Richmond, Va.
1892	Williams, T. R.....	Punxsutawney, Pa.
1905	Williamson, Charles S.....	103 State, Chicago, Ill.
1898	Williamson, Edward L.....	163 W. 74th, New York, N. Y.
1898	*Willits, Mary (*1902).....	Norristown, Pa.
1888	*Wilson, Edwin F. (*1902).....	Columbus, O.
1884	*Wilson, Henry P. C., Jr. (*1897).....	Baltimore, Md.
1887	Wilson, James C.....	1509 Walnut, Philadelphia, Pa.
1905	Wilson, W. L.....	5654 Monroe Ave., Chicago, Ill.
1890	Wing, Edgar D.....	Galesburg, Ill.
1886	Wing, Elbert.....	43 Grant Bldg., Los Angeles, Cal.
1880	*Wing, Theodore T. (*1887).....	Susquehanna, Pa.
1892	*Wirt, Wm. E. (*1906).....	Cleveland, O.
1879	Witthaus, Rudolph A.....	45 W. 32nd, New York, N. Y.
1882	Wolff, Henry A.....	501 W. 138th, New York, N. Y.
1897	WOOD, CASEY A.....	72 Madison, Chicago, Ill.
1889	*Wood, Robert W. (*1892).....	Jamaica Plains, Mass.
1892	*Woodbridge, Luther D. (*1899).....	Williamstown, Mass.
1888	§Woodman, Walter.....	
1898	Woodruff, Thomas A.....	72 Madison, Chicago, Ill.
1903	Woods, Hiram.....	842 Park Ave., Baltimore, Md.
1888	Woodside, Albert.....	Rockland, Me.
1904	Woodward, J. H.....	58 N. 40th, New York, N. Y.
1892	*Woolley, C. N. (*1896).....	Newburgh, N. Y.
1884	Wordin, Nathaniel E.....	274 Fairfield Ave., Bridgeport, Conn.
1891	Wright, Adam H.....	30 Gerrard, E., Toronto, Canada.
1904	Wright, John W.....	142 N. 4th, Columbus, O.
1899	Wright, Thompson B.....	140 E. Main, Circleville, O.
1893	*Wyman, Samuel E.....	Cambridge, Mass.
1903	Wyman, Walter.....	Marine Hospital Service, Washington, D. C.
1905	Wynekoop, F. Eldridge.....	1583 W. Monroe, Chicago, Ill.
1884	*Young, I. Gilbert (*1899).....	Philadelphia, Pa.
1886	Zenner, Philip.....	14 Glenn Bldg., Cincinnati, O.
1888	Ziegler, Samuel L.....	1504 Walnut, Philadelphia, Pa.
	<i>Fellows.....</i>	<i>940</i>

* Deceased. Name in SMALL CAPITALS has commuted dues by payment of \$30.

§ Address not known.

FELLOWS OF THE AMERICAN ACADEMY OF MEDICINE ARRANGED ALPHABETICALLY BY STATES AND POST-OFFICES.

ALABAMA.

Tuscaloosa.

Leach, Sydney.

Searcy, J. T.

Somerville, Wm. G.

ARKANSAS.

Hot Springs.

Hay, Eugene C.

CALIFORNIA.

Fresno.

Hare, George A.

Imperial.

Bold, Francis J.

Los Angeles.

Barlow, W. Jarvis.

Brainerd, Henry G.

Bridge, Norman.

Davidson, Anstruther.

Ellis, H. Bert.

Lobingier, A. Stewart.

Martin, James M.

Wing, Elbert.

Merced.

Castle, Curtis H.

Monrovia.

Pottenger, Francis M.

National City.

Fly, Edward M.

North Bloomfield.

Rogers, John B.

Oakland.

Adams, Frank L.

Pasadena.

Hoag, Ernest B.

McBride, James H.

Redlands.

Huchinson, Woods.

Johnson, Anna H.

San Francisco.

Blumer, George.

Brown, Adelaide.

Cavano, Wm. M.

Cluness, Wm. R.

Jones, Philip Mills.

Merritt, Emma S.

Powers, Geo. H.

Sherman, Harry M.

Southard, W. F.

Santa Barbara.

Knox, S. B. P.

South Pasadena.

Avery, Ralph W.

Stanford University.

Wilbur, Ray L.

COLORADO.

Colorado Springs.

Noble, Mary R.

Denver.

Bagot, W. S.

Bonney, Sherman B.

Chase, John.

Clough, Augustus A.

Denison, Charles.

Freeman, Leonard.

Hall, Josiah N.

Hawkins, Thos. H.

Hershey, Edgar P.

Holmes, A. Mansfield.

Jackson, Edward.

Sewall, Henry.

Fort Collins.

Kickland, W. A.

Stuver, Emanuel.

La Junta.

Edwards, E. Gard.

Monte Vista.

Chapman, Norman H.

Primero.

Ogle, Wm. M.

Pueblo.

Inglis, John.

Silverton.

Wilkinson, W. W.

CONNECTICUT.

Bridgeport.

Osborn, Geo. W.

Porter, Geo. L.

Wordin, N. E.

Chester.

Turner, Sylvester W.

Falls Village.

Wilcox, Dorvil M.

Hartford.

Simpson, Frederic T.

Steiner, Walter R.

Litchfield.

Buel, John L.

MacLaren, Wm. S.

Meriden.

Smith, Edward W.

Middletown.

Noble, Henry S.

New Haven.

McDonnell, Ralph A.

Smith, Henry S.

Shelton.

Shelton, G. A.

Stamford.

Tiffany, Frank M.

Thomaston.

Goodwin, Ralph S.

DELAWARE.

Milford.

Marshall, Geo. W.

Wilmington.

Bradford, Thos. B.

Springer, Willard.

DISTRICT OF COLUMBIA.

Washington.

Acker, Geo. N.

Appleby, J. F. R.

Ballock, Edward A.

Johnson, Joseph Tabor.

Lewis, E. R.

McArdle, Thos. E.

Magruder, Geo. L.

Motter, M. G.

Neff, Wallace.

Vincent, Thos. N.

Wyman, Walter.

GEORGIA.

Athens.

Newton, Edwin D.

Atlanta.

Taylor, Jos. L.

Augusta.

Doughty, Wm. H., Jr.

Cabaniss.

Shannon, John R.

De Soto.

Cato, Frank L.

HAWAII.

Honolulu.

Emerson, N. B.

ILLINOIS.

Auburn.

Wheeler, Frank R.

Batavia.

Carter, Charles W.

Belleville.

Scheel, A. M.

Bloomington.

Rhodes, Ora M.

Cary Station.

Johnston, Ellis A.

Champaign.

Dodds, J. Chambers.

Chicago.

Allen, Frances M.

Andrews, E. Wyliys.

Chicago—(Continued.)

Andrews, Frank T.
 Babcock, Robert H.
 Bacon, Charles S.
 Baumann, Frederic A.
 Baxter, Geo. E.
 Beck, Carl.
 Belknap, Frederick W.
 Bishop, Rufus W.
 Black, Arthur D.
 Brower, Daniel R.
 Brown, Edward V. L.
 Burr, Albert H.
 Byford, Henry T.
 Cisna, Wm. R.
 Collins, Rufus G.
 Culbertson, Carey.
 Curtis, Lester.
 Davis, N. S.
 Diefenderfer, Harold.
 Dudley, E. C.
 Dunavan, Louis W.
 Eberhart, Noble M.
 Edwards, Arthur R.
 Eisendrath, Daniel N.
 Engelmann, Rosa.
 Favill, Henry B.
 Fiske, Geo. F.
 Foshay, P. Maxwell.
 Frank, Mortimer.
 Gardiner, Edwin J.
 Goldspohn, Albert.
 Goodwin, Henry F.
 Graham, David W.
 Green, Frederick R.
 Gregory, Louis L.
 Hall, Alfred M.
 Hall, Geo. W.
 Hall, Winfield S.
 Hardie, Thos. M.
 Hardon, Robert W.
 Harrison, Wallace K.
 Harsha, Wm. W.

Hatfield, Marcus P.
 Higgins, Samuel G.
 Hinman, Clayton T.
 Holmes, Bayard.
 Houston, James P.
 Hyde, J. Nevins.
 Irons, Ernest E.
 Isham, Geo. S.
 Jackson, Thos. J.
 Johnson, Frank S.
 Johnson, Geo. W.
 Kallenberg, Henry F.
 Kelso, Curtis E.
 Kerr, Ellis K.
 Kirtley, Howard P.
 Klebs, Arnold C.
 Lane, Francis A.
 Lensman, Frederick A.
 Lewis, Henry F.
 Lewis, Thos. H.
 Lieberthal, David.
 McWilliams, Samuel A.
 Maclay, Otis H.
 Marquis, Geo. P.
 Merriman, Henry P.
 Mettler, L. Harrison.
 Miller, Jos. L.
 Mix, Chas. L.
 Nelson, Daniel T.
 Newman, Henry P.
 Plummer, Samuel C.
 Preble, Robert B.
 Reed, Edward N.
 Robison, John A.
 Rogers, Daniel W.
 Rutherford, Clarendon.
 Schiller, Heliodor.
 Simmons, Geo. H.
 Slaymaker, Samuel R.
 Sloan, Henry H.
 Speed, Kellogg.
 Stanton, S. C.
 Streeter, Edward C.

Chicago—(Continued.)

Van Benschoten, Wm. C.
 Van Hook, Weller.
 von Klein, Carl H.
 Waite, Lucy.
 Walker, Samuel.
 Washburn, Jas. M.
 Weatherson, John.
 Webster, John C.
 Wentworth, Wm. W.
 Weston, Edward B.
 Whalen, Chas. J.
 Williamson, Chas. S.
 Wilson, Wm. L.
 Wood, Casey A.
 Woodruff, Thos. A.
 Wynkoop, F. Eldridge.

Chicago Heights.

MacChesney, Wm. N.

Evanston.

Bannister, Henry M.
 Hemenway, Henry B.

Galesburg.

Wing, Edgar D.

Jacksonville.

Black, Carl E.
 Duncan, Wm. P.

Joliet.

Cohenour, V. J.

Lake Forest.

Haven, Alfred C.

Marion.

Shastid, Thomas H.

Mattoon.

Bell, Finis E.

Mendota.

Cook, Charles E.

Millington.

Freeman, Harry E.

Mt. Carroll.

Metcalf, Henry S.

Newman.

McNeill, H. Iles.

Ottawa.

Stout, Joseph.

Peoria.

Miller, Samuel M.

Riverside.

Heywood, Chas. W.

Rock Island.

DeSilver, Joseph.

Williams, Arthur E.

Springfield.

Kreider, Geo. N.

Prince, Arthur E.

Virginia.

Humphrey, Wm. D.

Waukegan.

Bouton, Wm. C.

Carter, J. M. G.

Urbana.

Gulick, Clyde D.

Zeigler.

Aderhold, Thos. M.

INDIANA.

Fort Wayne.

McCaskey, Geo. W.

Indianapolis.

Garrett, John D.

Heath, Frederic C.

Leonard, Henry S.

La Porte.

Andrew, Geo. L.

Logansport.

Hessler, Robert.

Marion.

Flynn, William.

Shelbyville.

Fleming, Geo. W.

Terre Haute.

Jenkins, Wilbur O.

IOWA.

Allon.

Gleysteen, Dirk V.

Ames.

Harriman, Wilbert E.

Boone.

Myers, Edward M.

Cherokee.

Voldeng, M. Nelson.

Clinton.

Farnsworth, Philo J.

Cresco.

Kessel, George.

Des Moines.

Hill, Gershom H.

Kennedy, Josiah F.

Dubuque.

Boothby, Jas. M.

Guthrie, J. Renwick.

Staples, Geo. Allen.

Grinnell.

Lewis, James R.

Iowa City.

Littig, Lawrence W.

Muscatine.

Stein, Simon G.

Ottumwa.

Brockman, David C.

LaForce, Wm. B.

Williams, A. O.

Shell Rock.

Smith, Wm. H.

Sioux City.

Darey, J. Herbert.

Jepson, William.

Spirit Lake.

Schofield, Jos. R.

KANSAS.

Hamilton.

Lewis, A. B.

Kansas City.

Hoxie, Geo. H.

Leavenworth.

Stacey, Harley J.

Liberal.

Nichols, Roscoe T.

Salina.

Deweese, Wm. B.

Topeka.

Esterly, Daniel E.

Mitchell, Matthew R.

KENTUCKY.

Danville.

Cowan, George.

Henderson.

Hanna, W. M.

Louisville.

Grant, H. H.

McMurtry, Louis S.

Maysville.

Pickett, Thos. E.

Russellville.

Alderson, M. E.

MAINE.

Auburn.

Oakes, Wallace K.

Augusta.

Davies, O. C. S.

Hill, Horace B.

Turner, Oliver W.

Bangor.

Mason, Wm. C.

Robinson, Daniel A.

Simmons, Wm. H.

Bath.

Barker, Byron F.

Lincoln, James O.

Bath—(Continued.)

Packard, Chas. A.
Rice, Wm. E.
Snipe, Langdon T.

Brooklin.

Herrick, Fred. S.

Brunswick.

Mitchell, Alfred.
Whittier, Frank N.

Calais.

Swan, Chas. E.

Castine.

Wheeler, Geo. A.

Gorham.

Files, Ernest W.

Houlton.

Putnam, Harry L.

Kennebunk.

Bourne, Geo. W.

Lewiston.

Garcelon, Alonzo.
McCollister, Elisha.

Lincoln.

Fuller, Charles.

North Whitfield.

Smith, Andrew R. G.

Portland.

Baker, Clarence A.
Boyle, Blanche C.
Bradford, Wm. H.
Brock, Henry H.
Burrage, Thos. J.
Gehring, Edwin W.
Gerrish, Frederick H.
Hunt, Chas. O.
King, Alfred.
Leighton, Chas. W.
McDonnough, Edward J.
Mitchell, Alfred, Jr.
Moulton, Willis B.
O'Neill, James B.

Pudor, Gustav A.
Small, Freeman E.
Smith, Chas. D.
Spalding, Jas. A.
Thayer, Addison S.
Thombs, Samuel B.
Thompson, John F.
Warren, Stanley P.
Weeks, Stephen H.

Presque Isle.

Boone, Sherman W.

Rockland.

Gribbin, Henry E.

Sabattus.

Sleeper, Frank E.

Saco.

Cochrane, Jasper D.
Goodale, Walter T.

St. George.

Woodside, Albert.

South Portland.

Brown, Frank I.

Standish.

Thompson, Wm. S.

Thomaston.

Walker, John E.

Vinal Haven.

Phillips, Geo. W.

West Brook.

Smith, Thos. P.

Woodford.

Foster, Chas. W.

Yarmouth.

Purinton, Lester G.

MARYLAND.*Baltimore.*

Amberg, S.
Bombaugh, Chas. C.
Cone, Sydney M.
Culbreth, D. M. R.

Baltimore—(Continued.)

Davis, John Staige.
 Ford, W. W.
 Friedenwald, Julius.
 Gilchrist, Thos. C.
 Gorgas, F. I. S.
 Hamburger, Louis P.
 Hunnor, Guy L.
 Hurd, Henry M.
 O'Donovan, Chas. Jr.
 Penrose, Clement A.
 Platt, Walter B.
 Pleasants, J. H.
 Ruhrah, John.
 Simon, Chas. L.
 Taneyhill, Geo. L.
 Woods, Hiram.

Hagerstown.

Scott, J. McPherson.

MASSACHUSETTS.*Arlington.*

Tolman, Julia.

Boston.

Amory, Robert.
 Bowditch, Vincent Y.
 Brown, Francis H.
 Coggeshall, Frederic.
 Cogswell, Chas. H.
 Culbertson, Emma B.
 Dearborn, Geo. V. N.
 Goodale, Jos. L.
 Johnson, Frank M.
 Leland, Geo. A.
 Littlefield, Geo. H.
 Marcy, Henry O.
 Marcy, Henry O., Jr.
 Martin, Francis C.
 Munro, John C.
 Otis, Edward O.
 Pease, Edward A.
 Richardson, M. H.
 Spalding, F. M.

Thompson, Geo. E.
 Whitcombe, Chas. R.

Brimfield.

Fisk, Samuel A.

Brookline.

Whittier, Francis F.

Cambridge.

Clarke, Augustus P.
 Goodale, Geo. L.
 Sargent, Dudley A.
 Tuttle, Albert H.
 Woodman, Walter.

Charleston.

Hammond, Wm. P.

East Boston.

Ruddick, Wm. H.

Fall River.

Connell, Chas. W.
 Jackson, John H.
 Learned, Wm. T.

Leominster.

Abbott, Griffith E.

Lowell.

Irish, John C.

Milbury.

Hurd, Albert G.

Monson.

Fuller, Geo. E.

New Bedford.

Hough, Garry de N.
 Swift, Wm. N.
 Tucker, Edward T.

Palmer.

Flood, Everett.

Southbridge.

Reed, Wm. G.

Springfield.

Maryott, E. Edgar.
 Parker, Wallace A.

Taunton.

Presbrey, Silas D.

Waltham.

Moses, Thos. F.

Waverly.

Cowles, Edward.

Westborough.

Harvey, Edwin B.

Westfield.

Atwater, James B.

Williamstown.

Olds, Frank W.

Winter Hill.

Cutter, Chas. K.

Dearborn, Alvah B.

Worcester.

Foskett, Geo. M.

Marble, John.

Perry, Chas. H.

Scribner, Ernest V.

Shaw, Thos. B.

Trowbridge, Edward N.

MICHIGAN.

Ann Arbor.

Dock, George.

Herdman, Wm. J.

Nancrede, Chas. B.

Peterson, Reuben.

Vaughan, V. C.

Bay City.

Erwin, R. W.

Landon, Henry B.

Detroit.

Brodie, Benj. P.

Connor, Guy L.

Connor, Leartus.

Connor, Ray.

Devendorf, C. A.

Emerson, Justin E.

Flintermann, Johann.

Hitchcock, Chas. W.

Johnson, John G.

Kiefer, Guy S.

Kiefer, Hermann.

McClintock, Charles.

Marshall, Cuvier R.

Sherrill, Edwin S.

Shurly, Burt R.

Tappey, Ernest T.

Warren, Wadsworth.

Grand Rapids.

Boisé, Eugene.

Hulst, Henry.

Mills, Hiram R.

Houghton.

Overfield, Adam.

Iron Mountain.

Carpenter, W. T.

Ishpeming.

Felch, Theodore A.

Jackson.

Lewis, Chas. H.

Kalamazoo.

Fitz, Edward.

Manistique.

Patterson, E. Blanchard.

Negaunee.

Sheldon, Horace W.

Norway.

Swift, Elisha P.

Stephenson.

Brasseur, John B.

MINNESOTA.

Faribault.

Rogers, Arthur C.

Fergus Falls.

Haugan, Otto M.

Hibbing.

Tower, John B.

Mankato.

Brandenburg, Frederick D.

Minneapolis.

Behrens, Bernt M.
 Hunter, Chas. H.
 Murray, Wm. R.
 Newhart, Horace.
 Staples, Henry L.
 White, S. Marx.

Saint Cloud.

Beebe, Warren L.

St. Paul.

Ritchie, Harry P.
 Rothrock, John L.

St. Peter.

Tomlinson, Henry A.

Winona.

McGaughey, Hugh F.

MISSISSIPPI.

Columbus.

Sykes, Richard L.

MISSOURI.

Columbia.

Miller, Walter M. N.

Kansas City.

Hertzler, Arthur E.
 Mott, John S.
 Schauffler, Edward W.

St. Louis.

Alt, Adolf.
 Ewing, Arthur E.
 Fry, Frank R.
 Green, John.
 Loeb, Hanau W.
 Nelson, Edward M.
 Post, M. Hayward.
 Shapleigh, John B.
 Summa, Hugo.

MONTANA.

Red Lodge.

Cuttle, Frederick.

NEBRASKA.

Lincoln.

Angle, Edward J.
 Stevens, Jas. F.

Omaha.

Findley, Palmer.
 Gifford, Harold.

NEW HAMPSHIRE.

Groverton.

O'Brien, Chas. C.

Hanover.

Smith, Wm. T.

NEW JERSEY.

Atlantic City.

Conaway, W. P.
 Darnall, Wm. E.
 Dunlap, T. G.
 Filbert, C. E.
 Joy, J. Addison.
 Reiley, Edward A.
 Stewart, W. Blair.

Bridgeton.

Elmer, Henry W.
 Elmer, Matthew K.
 Moore, John H.
 Smith, Thos. J.
 Tomlinson, Joseph.

Eatontown.

Partree, H. T.

Elisabeth.

Peck, George.

Jersey City.

Watson, Wm. Perry.

Lakewood.

Schauffler, Wm. G.

Montclair.

Stone, W. G.

Morristown.

Wheelock, Wm. E.

Nelcong.

Thayer, H. W.

Newark.

Stanwood, Robert G.

Plainfield.

Probasco, J. B.

South Orange.

Cobb, George H.

Pulsford, Henry A.

Summit.

Sell, E. H. M.

Tenafly.

Lansing, Jas. B. W.

Trenton.

Bruyere, John.

Elmer, William.

NEW MEXICO.

Albuquerque.

Hope, Walter G.

NEW YORK.

Albany.

Barker, James F.

Craig, Joseph D.

Culver, Chas. M.

Elting, Arthur W.

Munson, Geo. S.

Stevenson, M. D.

Tucker, Willis G.

Binghampton.

Beach, Geo. W.

Brooklyn.

Allemann, L. A. W.

Baldwin, Neilson A.

Brinsmade, Wm. B.

Bristow, Algernon T.

Butler, Glentworth R.

Campbell, Wm. F.

Coverly, John H.

Fairbairn, Henry A.

Figueira, Mathias.

Hopkins, Geo. G.

Hutchins, Alexander.

Jewett, Charles.

Lester, John C.

Matthewson, Arthur.

Paine, Arthur R.

Pilcher, Lewis S.

Price, Henry R.

Rae, Alexander.

Schenck, P. L.

Sheppard, John E.

Simmons, W. S., Jr.

Stuart, Francis H.

Buffalo.

Benedict, A. L.

Diehl, Alfred E.

Grosvenor, J. W.

Hurd, Arthur W.

Jewett, Chas. S.

Matzinger, Herman G.

Rochester, DeLancey.

Trowbridge, Grosvenor R.

Wall, Chas. A.

Clifton Springs.

Spaulding, Frank W.

Tinker, M. B.

Danville.

Wherry, James W.

Geneva.

DeLaney, John P.

Ithaca.

Hitchcock, Edward, Jr.

Jamestown.

Bemus, Morris N.

Greeley, Jane L.

Morris, Jas. W.

Manhasset.

Niesley, Chas. M.

Monroe.

Vanderveer, John R.

New York.

Bieser, Augustus E.

Biggs, Herman M.

New York—(Continued.)

Bishop, Louis F.
 Brannan, John W.
 Bermingham, Edward J.
 Billings, John S.
 Brekes, David.
 Bronson, Edward B.
 Bulkley, L. Duncan.
 Carhart, Wm. M. d'A.
 Chrystie, Thos. M. L.
 Coakley, Cornelius G.
 Coan, Titus M.
 Criado, Louis F.
 Dana, Charles L.
 Dennis, Frederic S.
 Dunham, Edward K.
 Edgar, James C.
 Einhorn, Max.
 Elliot, Geo. T.
 Fordyce, John A.
 Fox, Geo. H.
 Gerster, Arpad G.
 Hadden, Alexander.
 Haven, Foster S.
 Hawkes, Forbes.
 Hayes, Wm. V.
 Hubbard, Wm. N.
 Judson, Adoniram B.
 Kinch, Chas. A.
 Knight, Chas. H.
 Knopf, S. A.
 LeFevre, Egbert.
 Lewis, Daniel.
 Lybolt, Archibald.
 Lyons, Frederick A.
 Manges, Morris.
 May, Chas. H.
 Mial, L. L.
 Morton, Wm. J.
 Morrow, Prince A.
 Needham, Geo. Gordon.
 Newcomb, Jas. E.
 Nisbet, Jas. D.

Rockwell, A. D.
 Roosa, D. B. St. J.
 Satterthwaite, Thos. A.
 Savage, Watson L.
 Sayre, Reginald H.
 Schoonover, Warren.
 Seamans, Wm. S.
 Shrady, Geo. F.
 Shrady, John.
 Simmons, Chas. E.
 Sternberger, Edwin.
 Taylor, Henry L.
 Thomas, James C.
 Torek, Franz J. A.
 Tuttle, Geo. M.
 Van Santvoord, Richard.
 Van Valzah, W. W.
 Wilcox, Reynold W.
 Williams, C. M.
 Williamson, Edward L.
 Withaus, Rudolph A.
 Wolff, Henry A.
 Woodward, J. H.
Niagara Falls.
 Snyder, Thomas.
Oneida.
 Miles, Geo. W.
Peekskill.
 Knight, Chas. A.
Phelps.
 Howe, Wm. A.
Rochester.
 Dow, Frank F.
 Durand, Henry S.
 Rider, Wheelock.
 Stoddard, E. V.
 Whitbeck, J. F. Ward.
Schenectady.
 Clute, Wm. T.
 Huggins, Walter L.
 Mynderse, Herman V.

Syracuse.

Heffron, John L.
Totman, David M.
Van Duyn, John.

Troy.

Ward, R. Halstead.

Westfield.

Strong, Thos. D.

NORTH DAKOTA.

Fargo.

Campbell, Frank J.

NORTH CAROLINA.

Biltmore.

Holmes, Lawrence E.

OHIO.

Alliance.

Tressel, John H.

Canton.

Marchand, Jacob F.
Post, Silas B.

Cincinnati.

Conner, P. S.
Dandridge, N. P.
Friedlander, A. Fred.
Ravogli, Augustus.
Thrasher, A. B.
Zenner, Philip.

Circleville.

Jones, Howard.
Wright, Thompson B.

Cleveland.

Baker, Albert R.
Bruner, Wm. E.
Crile, Geo. W.
Scott, Xenophon C.
Sechrist, Cora S.

Columbus.

Barnhill, Jas. U.
Blake, Francis W.
Brown, John E.
Cooperrider, Charles A.

Dunham, John D.

Hamilton, Chas. S.

Hamilton, Wm. D.

Kinsman, D. N.

Medberry, Josiah.

Phillips, Ellis.

Timberman, Andrew.

Upham, J. H. J.

Wright, John W.

Dayton.

Foster, Thomas.

Lima.

Vail, J. B.

Montpelier.

Weitz, John A.

Oxford.

Moore, Hugh M.

Painesville.

House, Chas. F.

Sandusky.

Merz, Chas. H.

Tiffin.

Focht, Wm. W.

Toledo.

Van Pelt, Chas. L.

Zanesville.

Crossland, J. C.

OREGON.

Baker City.

Herdien, E. Forrest.

Portland.

Kelley, Richmond.

PANAMA (canal zone).

Ancon.

Phillips, Charles E.

PENNSYLVANIA.

Aaronsburg.

Musser, Chas. S.

Allentown.

Grim, H. A.

Herbst, Henry H.

Athens.

Stevens, Cyrus L.

Bangor.

Sherrer, H. Straub.

Bellevue.

Welch, John C.

Butler.

Doane, L. Leo.

Carlisle.

Diven, Samuel L.

Pilcher, James Evelyn.

Columbia.

Craig, Alex. R.

Craig, John J.

Conshohocken.

McKenzie, William.

Danville.

Robbins, J. E.

Dickinson.

Longsdorf, Harold H.

Du Bois.

Free, Spencer M.

East Brady.

Robinson, R.

Easton.

Fretz, John E.

Green, Edgar M.

McIntire, Charles.

Michler, Henry D.

Moore, James W.

Ott, Isaac.

Emporium.

Bardwell, E. O.

Gettysburg.

Stahley, George D.

Greensburg.

Kline, W. J. K.

Hanover.

Alleman, H. M.

Wentz, Alex C.

Harrisburg.

Gerhard, Jerome Z.

Kunkel, George.

Lee, Benjamin.

Hecktown.

Beck, Richard H.

Honeybrook.

Treichler, C. Galen.

Johnstown.

Barker, Olin G. A.

Kingston.

Cora, Frederic.

Kunkel, Henry.

Lancaster.

Appel, Theodore B.

Lewisburg.

Groff, Geo. G.

Mason and Dixon.

Miller, D. C. R.

Montrose.

Halsey, Calvin C.

Norristown.

Weaver, Jos. K.

Philadelphia.

Allyn, Herman B.

Atkinson, Wm. B.

Baker, Geo. Fales.

Bartholow, Paul.

Barton, James M.

Birney, David B.

Burgin, Herman.

Cadwalader, Chas. E.

Cadwalader, Edith W.

Castle, Franklin D.

Cattell, Henry W.

Chapin, John B.

Cleeman, Richard A.

Cohen, Solomon Solis.

Curtin, Roland G.

Daland, Judson.

Darrach, James.

Philadelphia—(Continued.)

Davis, Gwilym G.
 Deal, Lemuel J.
 Dorland, W. A. Newman.
 Dunton, Wm. R.
 Dwight, Henry E.
 Ely, Thos. C.
 Eahner, Augustus A.
 Evans, Horace Y.
 Everett, Ella B.
 Fetterolf, George.
 Fisher, Frank.
 Gleason, E. Baldwin.
 Gould, Geo. M.
 Hammond, L. J.
 Hansell, Howard F.
 Harlan, Geo. C.
 Harper, Thos. S.
 Hess, Robert J.
 Holland, James W.
 Hollopeter, Wm. C.
 Johnson, Russell H.
 Keen, Wm. W.
 Kelly, A. O. J.
 King, Wm. H.
 Kyle, D. Braden.
 Kynett, Harold H.
 Laplace, Ernest.
 Lathrop, Ruth W.
 Leaman, Henry.
 Leffmann, Henry.
 Leopold, Isaac.
 Lott, Wm. C.
 Makuen, G. Hudson.
 Marshall, Geo. M.
 Montgomery, Edward E.
 Morris, Elliston J.
 Morris, J. Cheston.
 Moulton, Albert R.
 Oliver, Chas. A.
 Packard, John H.
 Penrose, Chas. B.
 Perkins, Francis M.
 Pontius, Paul J.

Pyle, Walter L.
 Reed, W. Boardman.
 Risley, Samuel D.
 Roberts, John B.
 Roberts, Walter.
 Roche, C. Percy de la.
 Santee, Eugene I.
 Sartain, Paul J.
 Schneideman, Thos. B.
 Schweinitz, Geo. E. de.
 Schwenk, P. N. K.
 Shoemaker, John V.
 Smith, Jos. R. (U. S. A. retired).
 Smock, Ledru P.
 Snively, I. Newton.
 Stellwagen, Thos. C.
 Stout, Geo. C.
 Stubbs, George E.
 Taylor, J. Madison.
 Thomson, Archibald G.
 Thomson William.
 Turnbull, Chas. S.
 Turner, Chas. P.
 Veasey, Clarence A.
 Walk, James W.
 Walker, Gertrude A.
 Walker, James B.
 Wilson, Jas. C.
 Ziegler, Samuel L.

Pittsburg.

Allyn, G. W.
 Arbuthnot, Thos. S.
 Beach, Wm. M.
 Connell, J. G.
 Davis, Thos. D.
 Davis, Wm. M.
 Foster, Wm. S.
 Grayson, Thos. W.
 Heckel, Edward B.
 Kearns, W. D.
 Langfitt, Wm. S.
 Lichty, John A.
 Lippincott, Jas. A.

Pittsburg—(Continued.)

McKenna, T. M. T.
 Mayer, Edward E.
 Patterson, Stuart.
 Shaw, Wm. C.
 Small, Edward H.

Pottsville.

Carpenter, James S.
 Halberstadt, Andrew H.

Punxsutawney.

Williams, T. R.

Reading.

Dundor, A. am B.
 Muhlenburg, Wm. F.

Retreat.

Mayberry, Chas. S.

Skranton.

Logan, Harry V.

Sewickly.

Jennings, Samuel D.

Shamokin.

Maurer, J. M.

South Bethlehem.

Estes, Wm. L.

Wayne.

Egbert, Joseph C.
 Wells, Geo. M.

Waynesboro.

Hoover, Percy D.
 Strickler, Abraham H.

Wernersville.

Vinton, Chas. H.

West Chester, Pa.

William M. Powell.

Wilkes-Barre.

Harvey, Olin F.
 Shoemaker, Levi I.

Wyoming.

Knapp, Chas. P.

York.

Jones, Harry H.
 Meisenhelder, Edmund H.
 Shearer, Niles H.

RHODE ISLAND.

Providence.

Abbott, Harlan P.
 Capron, Franklin P.
 Carr, Geo. W.
 Chapin, Chas. V.
 Chesebro, Edmund D.
 Churchill, Donald.
 Collins, Geo. L.
 Cooke, Henry A.
 Crooker, Geo. H.
 Cutts, Wm. B.
 Day, Frank L.
 DeWolf, Halsey.
 Ely, Jas. W. E.
 Fulton, Frank T.
 Ham, Albert E.
 Hersey, Geo. D.
 Hoye, Henry J.
 Matthews, Geo. S.
 Milan, Michael B.
 Miller, Horace G.
 Peck, Geo. B.
 Peckham, Frank E.
 Porter, Geo. W.
 Putnam, Helen C.
 Rogers, Frederic T.
 Swarta, Gardner T.
 Welch, Stephen A.
 White, Wm. R.

SOUTH CAROLINA.

Charleston.

Huger, Wm. H.

SOUTH DAKOTA

Aberdeen.

McNutt, H. E.

Vermillion.

Burkland, Philip R.

TENNESSEE.

Knoxville.

Tadlock, A. B.

Nashville.

Hale, Geo. W.
Warden, Carl C.

U. S. A.

Alden, Chas. H. (retired).
Forwood, Wm. H. (retired).
Hoff, John Van R.
McCulloch, Champe C.
Marshall, John S.
Patzki, Julius H. (retired).
Shimer, Ira A.
Smith, Jos. R. (retired).

U. S. N.

Braisted, Wm. C.
Cordeiro, F. J. B.
Freeman, Geo. F.

UTAH.

Salt Lake City.

Ewing, Wm. B.
Plummer, Chas. G.
Silver, Edward V.

VERMONT

Brattleboro.

Holton, Henry D.
Miller, Ansel I.

Burlington.

Hawley, Donly C.
Stone, B. H.
Watkins, Harris B.
Wheeler, John B.

Rutland.

Caverly, C. S.
Hamilton, James M.

Woodstock.

Kidder, F. Thomas.

VIRGINIA.

Bon Air.

Hazen, Chas. M.

Charlottesville.

Davis, John Staige, Jr.

Hampton.

Waldron, Martha M.

Hot Springs.

Hinsdale, Guy.

Richmond.

Massie, Joseph P.
Taylor, Hugh McG.
Williams, Robert F.

WASHINGTON.

Seattle.

Cummins, Chas. E.
Griswold, Walter S.

WEST VIRGINIA.

Wheeling.

Aschman, Gustavus A.
Dickey, John I.
Reed, Robert J.

WISCONSIN.

Hudson.

Gray, Frank F.

Keyeser.

Carlton, Edward P.

Madison.

Head, Louis R.
Sheldon, Chas. S.

Milwaukee.

French, Samuel W.
Gray, Alfred W.
Harlow, Geo. A.
Kellogg, E. Wells.
Puls, Arthur J.
Smith, Bryant.

Wauwatosa.

Dewey, Richard.

CANADA.

Montreal.

Blackader, A. D.
Reddy, Herbert L.
Smith, A. Laphorn.

Toronto.

Reeve, Richard A.
Wright, Adam H.

BRAZIL.

Sao Paulo.
Barreto, O. de Mello.

BURMA.

Tongoo.
Corson, Elton S.

GERMANY.

Berlin.
Magill, Wm. S.

GREAT BRITAIN.

East Liss, Hants.
Major, Geo. W.

KOREA.

Fu San.
Johnson, Woodbridge O.

 ERRATUM.

Owing to the misplacing of a memorandum slip please make the following correction in address :

Thomas H. Shastid, *from* Harrisburg, Ill., *to* Marion, Ill.

CONSTITUTION.

ARTICLE I. TITLE.

This Association shall be known as the AMERICAN ACADEMY OF MEDICINE.

ARTICLE II. OBJECT.

The object of the Academy shall be—

1. To bring those who are alumni of classical, or scientific, and medical schools into closer relations with each other.
2. To encourage young men to pursue regular courses of study in classical and scientific institutions before entering upon the study of medicine.
3. To extend the bounds of medical science, to elevate the profession, to relieve human suffering, and to prevent disease.

ARTICLE III. MEMBERSHIP.

SEC. I. The membership of the Academy shall consist of fellows and honorary members.

SEC. II. The fellows shall be alumni of respectable institutions of learning, having received therefrom—

(1) The degree of Bachelor of Arts, or Master of Arts, after a systematic course of study, preparatory and collegiate; but when a candidate has not received either of these degrees in course, other evidences of a preparatory liberal education, which shall be considered as equivalent to the same by the council, may be accepted in lieu of a degree by the Academy;

(2) The degree of Doctor of Medicine, after a regular course of study, not less than three years, under the direction and instruction of preceptors and professors; or

(3) When a candidate is an alumnus of a foreign institution, or institutions, not granting the degree of Bachelor or Master of Arts, or of Doctor of Medicine, a certificate, or certificates, or a license, which shall be considered as equivalent by the council, may be accepted in lieu thereof by the Academy.

(4) The fellows shall be reputable graduates in medicine.

SEC. III. Honorary members shall consist of gentlemen in the medical profession, at home and abroad, who have made important contributions to medical science.

SEC. IV. The honorary members shall not exceed five for every one hundred fellows. They shall be entitled to attend the meetings of the Academy and participate in the proceedings, but shall have no right to vote or hold office.

SEC. V. The consent, by ballot, of two-thirds of the fellows present, shall be necessary for the election of fellows or honorary members.

ARTICLE IV. OFFICERS.

The officers of the Academy shall be a president, four vice-presidents, a secretary, an assistant secretary, and a treasurer. These shall be elected by ballot from the fellows, to serve one year, or until others are elected. The president is ineligible for two successive terms.

ARTICLE V. COUNCIL.

The council shall consist of the officers of the Academy, ex-presidents, and one fellow for every twenty or fraction thereof in attendance. The latter shall be appointed annually by the president.

ARTICLE VI. MEETINGS.

The Academy shall hold one regular meeting each year.

ARTICLE VII. REVENUE.

SEC. I. The sources of revenue shall be the initiation fees, dues, the transactions of the Academy, and the certificates of membership. The initiation fee of five dollars shall be paid before admission and registration. A fee of one dollar shall be due at each subsequent annual meeting; the neglect to pay this fee for three successive years shall cause the name of the fellow so neglecting to be entered upon a separate roll to be known as the list of suspended fellows: *Provided*, That all fellows elected previous to, or during, the meeting for 1898 shall not be liable to this penalty. If any fellow pays the sum of twenty dollars at one time, he is freed from the payment of any subsequent annual dues.

SEC. II. The money received from the payment of life dues shall be invested as the council may direct, and the interest only can be expended.

ARTICLE VIII. DISCIPLINE.

SEC. I. The fellows of the Academy in their relations with each other and with their fellow men agree to be governed by the principles embodied in the present code of ethics of the American Medical Association, and by the constitution and by-laws of the Academy.

SEC. II. A complaint being duly made to the council by two fellows against any fellow or honorary member for a violation of the constitution or by-laws of the Academy, the ethical principles therein recognized, or the laws of morality, shall be heard and considered by the council, notice of the same, including the time and place of hearing, being served on the accused by the secretary at least four weeks beforehand that he may present his defense; and the sentence of the council, whatever it may be in such case, shall be final.

ARTICLE IX. QUORUM.

Five fellows of the Academy shall constitute a quorum at any regularly called meeting.

ARTICLE X. CERTIFICATE.

A Latin certificate of fellowship, bearing the seal of the Academy and the signature of the officers, shall be issued to any fellow on payment of its actual cost.

ARTICLE XI. DELEGATES.

Delegates may be sent by vote of the Academy, or by the council when the Academy is not in session, to medical associations in foreign countries; and delegates may also be received from such associations.

ARTICLE XII. AMENDMENTS.

Every proposal to alter or amend the constitution of the Academy, shall be made in writing and entered on the minutes. If two-thirds of the fellows present at the next regular meeting vote for such alteration or amendment, it shall be adopted.

 BY-LAWS.

ARTICLE I. DUTIES OF THE OFFICERS.

SEC. I. The president shall preside at the meetings of the Academy and of the council, preserve order, announce the admission of fellows and members, appoint all committees not otherwise ordered, fill vacancies which may occur in the council and in committees, and name the time and place of meeting for the council. When requested by a majority of the officers to call a special meeting of the council, he shall direct the secretary to call such meeting, and shall indicate the special subjects to be considered. He shall deliver an address before the Academy at the close of his term of office, and perform such other duties as the constitution, by-laws, and parliamentary usages require.

SEC. II. The vice-presidents, when called upon, shall assist the president in the performance of his duties. In his absence, or at his request, one of them, in the order of seniority, shall take his place in the Academy or in the council, and may deliver the annual address.

SEC. III. The secretary shall have charge of the records and the correspondence of the Academy. He shall receive all proposals for membership presented in due form and shall lay them before the council. He shall receive the initiation fees and give vouchers for them. He shall pay the same to the treasurer and shall take his receipt therefor. He shall enter in the register of the Academy the names of all the fellows admitted from year to year with their post-office address, place of nativity, time of birth, degrees, the institution conferring them, and the dates thereof; and in another column the time of their demise, when that shall occur. He shall enter in another

part of the register the names of the honorary members. He shall keep an accurate and legible account of the acts of the Academy and of the council, and shall preserve the same carefully and deliver them to his successor when elected. He shall edit the transactions in a manner and style agreed upon by the council. He shall give due notice in the medical journals of the meetings of the Academy. He shall notify committees of their appointment, and shall, in connection with the presiding officer, certify all acts of the Academy and of the council.

SAC. IV. It shall be the duty of the assistant secretary to assist the secretary in the meetings of the Academy as well as in the meetings of the council, and in his absence to take his place.

SAC. V. The treasurer shall collect and take charge of the funds of the Academy. He shall pay out of those only such sums as are ordered by the Academy or by the council, and shall take vouchers for the same. He shall annually present a statement of the finances of the Academy, which shall be referred to a committee of three fellows to be audited. He shall hold the funds of the Academy in trust, and shall give security for faithful performance of his duties when the receipts shall exceed \$500 annually. He shall also take charge of its transactions and distribute them on the receipt of the price of the volume, and may sell them to any person. He shall deliver all funds in his possession to his successor, when elected.

ARTICLE II. DUTIES OF THE COUNCIL.

SAC. I. The council shall convene at the call of the president, and shall consider and act upon all proposals for membership presented in due form, as indicated in the by-laws, signed by at least one fellow, and countersigned by the secretary. If the council is satisfied that the qualifications of the candidate are such as are required by the constitution, it shall report the same to the Academy, with the words "Approved by the council" endorsed on the proposal. In the case of those who may not be reported, or who do not receive a vote of two-thirds of the Academy, no minute shall be kept.

SAC. II. It shall be the duty of the council to consider and recommend plans for promoting the objects of the Academy; to superintend its interests; to make arrangements for the meetings; to determine finally all questions of medical ethics arising among the fellows and members; to decide upon, and superintend, all its publications; to authorize the disbursement; of unappropriated funds in the treasury for the payment of current expenses, and to perform such other duties as may from time to time be committed to it by the Academy.

ARTICLE III. COMMUNICATIONS.

SAC. I. Papers on medical subjects may be read before the Academy, provided they have been deposited with the secretary of the council at least

thirty days before the time of the regular meeting, and have also been approved by the council.

SEC. II. All motions or resolutions, excepting those which relate to ordinary and routine business, shall be referred to the council without debate. Unless otherwise instructed by the Academy, the council shall report the resolution back with its recommendation at the next executive session following the introduction of the resolution.

ARTICLE IV. TIME AND PLACE OF MEETING.

SEC. I. The Academy shall hold a regular meeting annually, the place and time to be determined upon at the previous regular meeting; but both place and time may be changed by the council for reasons that shall be specified in the announcement of the meeting.

SEC. II. The council may call special meetings of the Academy whenever, in its judgment, it is necessary; and it shall call a special meeting whenever it is requested to do so by twenty-five fellows of the Academy.

SEC. III. At any special meeting only such business can be transacted as is mentioned in the call for the meeting.

SEC. IV. The minutes of all special meetings shall be sent to the secretary of the Academy within thirty days after the meeting of the Academy for its information and, with the exception of the fellows elected, be subject to its revision or veto. The transactions of all special meetings shall be a part of the proceedings of the year designated by the previous annual meeting.

ARTICLE V. THE ORDER OF BUSINESS.

The order of business shall be fixed by the council.

ARTICLE VI. AMENDMENTS.

Every proposal to alter or amend the by-laws shall be made in writing; and if such alteration or amendment receive the unanimous consent of the fellows present, it shall be adopted; but if objections be made, the alteration or amendment shall lie over until the next regular meeting, when, if it receive the vote of two-thirds of the fellows present, it shall be adopted.

CERTIFICATE OF THE AMERICAN ACADEMY OF
MEDICINE.¹

ACADEMIA MEDICINAE AMERICANA.

Instituta A.D., MDCCCLXXVI.

OMNIBUS HAS LITTERAS LECTURIS.

Salutem.

HÆC ACADEMIA eo consilio instituta est, ut omnes qui titulo graduque Medicinæ doctoris honorati, et artium liberalium vel magistri vel baccalaurei titulo adornati et condecorati, vel æqualiter litterati adjudicati, sunt, crebro convenirent, diligenter exquirentes quo modo aegritudinem humanam allevarent atque morbos malaque hominum impedirent; necnon ut salutem et sanitatem totius populi conservarent.

Vobis notum sit quod SOCII hujus ACADEMIAE, quibus satis persuasum est, cognitione a suo Concilio studiose quaesita,

Doctorem

in usu et tractatione medicinæ artis bene versatum esse, atque scientia artium liberalium admodum doctum, eundem sodalem cooptaverunt et SOCIUM creaverunt, et ei fruenda dederunt omnia jura, privilegia et insignia, cum iis honoribus atque dignitatibus quæ his litteris pertinent aut concedi solent.

In cujus rei testimonium his litteris hujusce Academiae sigillum et nomina praesidis et scribae, qui, in praesenti, curam ejus sustinent, apponuntur.

Datum

hoc die

Anno

Scriba.

Præses.

The seal of the Academy is a shield on which is placed the caduceus of Mercury; resting on the top of the shield is an American eagle with extended wings, holding in its beak a scroll with the motto of the Academy: "*Prodesse civibus.*" The whole is surrounded by a border with the inscription "ACADEMIA MEDICINAE AMERICANA, 1876."

The Academy colors on which the seal of the certificate is placed are light blue and orange, woven in a single ribbon.

¹ As the constitution requires the certificate to be furnished at cost, the price varies from time to time depending upon the cost of printing. The present price is \$5.00 if printed on true parchment, and \$3.00 if printed on bond paper.

BULLETIN

OF THE

American Academy of Medicine.

(Specializing in Medical Sociology.)

VOL. VII.

ISSUED AUGUST, 1906.

No. 8.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or article published in the BULLETIN.

HEREDITY AND ENVIRONMENT AS CAUSES OF DELINQUENCY AND CRIME.¹

By DONLY C. HAWLEY, M.D., Burlington, Vt., President of the Academy.

Fellows and Guests of the American Academy of Medicine:

For the distinguished honor conferred upon me by an election to the presidency of this Academy, I desire first of all to acknowledge my deep obligation and to express my hearty gratitude.

In presenting to this thirty-first annual meeting the president's annual address, I am undertaking the discharge of a most pleasant duty, fully conscious that my best efforts will be entirely incommensurate with the high honor you have conferred upon me, in placing my name in the list of worthy men who have been chosen to preside over your deliberations.

If honest doubts have existed as to there being a proper field, uncultivated by other medical organizations, in which the Academy could find profitable work to do, such doubts must at the present time be dispelled from the minds of all who have watched its workings, or who are acquainted with its purposes.

Started a third of a century ago, by those who believed a better mental equipment was desirable for men entering the ranks of the medical profession, the Academy has not only aided in raising the standards of preliminary training and of medical education, thereby helping to make the profession more cultured and more liberal, but has made and is making a careful and systematic study of the status of the profession in its various relations, as well as of the social conditions of the community.

¹ Address of the president at the 31st annual meeting, Boston, June 2, 1906.

Gradually and by a natural process of evolution, there has been opened up a field for its activities which embraces every phase of medical sociology. Its ambition to enter and cultivate this field is a most laudable one, and its work to a degree, distinctive, is attracting the attention and aid of educators and sociologists.

Having thus from year to year, unconsciously in a measure and with lack of system, worked up to this broad field for its efforts, its Committee on Program has this year taken the liberty to lay out a definite plan for the future work of the Academy which shall embrace all the altruistic activities of the profession, and such of the egoistic only as are essential to self-preservation and development, and to a perfected professional organization in which each shall find proper adjustment. For this plan which outlines and gives shape to the work which during the later years has been undertaken by those in charge of the program with too little system and too much at random, I bespeak the careful consideration of all the Fellows.

If it seems wise to the Council to encourage this attempt at systematizing the work of the Academy, I believe the work of the Committee on Program will in the future be much simplified, the interest in our deliberations increased, and the value of our literature, already of distinctive and permanent worth, much augmented.

In undertaking any sociologic study we encounter at once intricate problems, a solution of which leads us not only to take careful note of existing conditions but to seek for their more remote causes.

The prevalence of degeneracy, delinquency and crime in every community has led students of sociology not only to search for a remedy but to seek still further for the causes which are the foundation of their existence and apparent increase. We are told on the one hand that heredity as a primal cause of these conditions has received too little attention, and on the other that adverse individual and social conditions and lack of proper education are to a larger degree responsible for their existence.

The minute fidelity with which man transmits to his descendants physical characteristics, both normal and pathologic, as well as

character, temperament and mental habits, is a matter of general observation.

The fact that the child is often physiologically and psychologically the counterpart of the parent is a fact to which no one at the present day will raise question.

That heredity is clearly traceable in the physiognomy is evinced by the Roman nose and the Hapsburg lip. The heredity of stature, form, strength, dexterity, complexion, temperament, various idiosyncrasies, diseases and neuroses is plain and unquestioned.

The hereditary transmission of vicious sentiments, and passions for alcoholic drink, gambling and debauchery have been in many instances established beyond a reasonable doubt.

While scientists admit the heredity of physical and pathologic peculiarities, the weight of their testimony is to the effect that this phenomenon while frequent is not constant.

The extreme deviations encountered in the study of hereditary transmission almost baffle explanation if we accord to heredity a constant rôle. In the transmission of psychologic peculiarities the force of heredity loses strength and constancy, and if here heredity is not a constant and exclusive force, what are the causes which tend to modify it and to change the trend of man's thoughts, feelings and habits?

Opposed to heredity and working always in a contrary direction is the influence of education.

Education undertakes to develop in the individual all the mental faculties to such an extent that he may profit by, and to a degree acquire, the habits of thought and the accumulated knowledge of mankind; it endeavors to so discipline his mind that he may draw inspiration from the best thoughts of the brightest minds of the past and it helps to make available for his own profit and development the experiences, the ideas and the culture of the men who have lived and acted before him.

Education, a complex process indeed, is to-day considered an essential in developing individual capacities and powers of mind, and this very fact accords to heredity a minor place in mental and moral development; in fact, as Papillon well says:¹ "The

¹ "Heredity and Race Improvement."

influence of education, opposed as it is to that of heredity, is so great that in most cases it is of itself alone capable of producing a moral and psychological likeness between children and parents" and again "the importance which is generally attributed to works on pedagogy is itself a protest against the abuse of hereditarian theories."

Further, the instinct of imitation is seen to be a powerful influence in gradually changing the habits, sentiments and opinions of men, and in giving new force and direction to the development of individuals, nations and races. The child naturally imitates the parent and the teacher, and even, his mates in school or on the street, who exhibit superior strength of mind or of will, or possess the power of leadership. In fact great masses of men are changed in characteristics, both physical and intellectual, by the almost imperceptible power of imitation, and in the same way individuals unconsciously acquire new tastes, opinions, beliefs and prejudices.

Men possessing the power of leadership, whether their ideals be high or low, are followed, imitated, copied by the average individual in every community.

The power of this instinctive force of imitation cannot be questioned, and its sway is greatest among the uncivilized, the uneducated, the immature and the young.

While it is a point of nice discrimination to say where heredity ends and imitation begins we must admit that the latter is a force differing distinctly from heredity, working at times in a direction parallel with it, and oftener perhaps in an opposite direction.

Heredity in its influence upon individual development is most strongly opposed by another force, which is more strictly psychologic.

We have said that in the transmission of psychologic peculiarities the force of heredity loses strength and constancy. More correctly perhaps may we declare that in the development of the human mind, the strongest opponent of heredity, more powerful than education or the instinct of imitation, is the innovative force of individual initiative. Rare genius is so seldom read in the record of hereditary transmission, as to leave the impression that it is

scarcely ever a family trait. The genius of every great mind is an individuality, marked by the power of initiative and by self-reliant will and judgment. This individuality is the direct opponent of heredity, and in the development of mankind is constantly lessening its influence. That men of genius and of unusual ability, great statesmen, jurists, philosophers, metaphysicians and mathematicians, seldom inherit special talent is an historic fact.

We are aware that the opposite opinion is urged as the correct one by many, who assert that great men are such principally by inheritance. A careful study of the antecedents of the leaders of thought and action in this and other generations, seldom reveals distinguishing family characteristics, and we are led to the conclusion that, in the majority of cases, they were not above the average. In the family the habits of thought and of action of the parents are reproduced in the child, and the consensus of present opinion is, I believe, that this is more the result of acquisition than of inheritance.

In a scientific exposition of the laws of heredity based upon the theory of evolution, a prominent place must be given to the inheritance of acquired characters. The medical profession generally, I believe, accept the acquired-character-transmission theory as a fact. As bearing on this point Dr. Maudsley says: "Overpopulation leads to deterioration of the health of the community by overcrowding and the insanitary condition of dwelling-houses which it occasions in towns. Not fevers only, but scrofula, perhaps phthisis and certainly general deterioration of nutrition are thus germinated and transmitted as evil heritages to future generations; the acquired ill of the parent becomes the inborn infirmity of the offspring."

"Characters of all kinds whether new or old tend to be inherited" is the testimony of Darwin. Strahan, in his work on "Marriage and Disease," says: "Thus does the environment create, modify and extinguish physical characters, and its action is not less effectual in the mental and moral worlds. Just as the degenerate physical development of the poor dwellers in large cities is handed down from parent to child, so has the liability to scrofula, gout, rheumatism, epilepsy, insanity and drunken-

ness been acquired and transmitted, as is also the predisposition to crime handed down, an heirloom in that degenerate race, the instinctive criminal."

Character inheritance is an inheritance of the sum of acquired characters of the family or race, these acquired characters constantly changing through the modifying influences of environment. If acquired characters become so dominant as to be transmitted, they surely must be of sufficient strength to change under right conditions the thoughts, the feelings, the sympathies, the life of the individual.

While a thorough knowledge of the biologic law of heredity is of vital importance, there is need for a wider recognition of the tendency of nature to "throw back" to the normal or average. This tendency to reversion is one of nature's wise laws, preventing as it does the continuance of the grossly unfit.

In speaking of reversion Strahan says: "When the individual, from whatever cause, varies so far from the present existing type of his family as to be out of harmony with it, he must also be out of harmony with his environment, for the family type is the resultant of the survival of the fittest, which means those in most perfect harmony with the environment. As the creature cannot survive long in an environment to which he is not suited, therefore the offspring of the extreme variation from the normal, must of necessity return to the original family type or cease to exist because of its unfitness. When variation is extreme, reversion or extinction must take place." Like every biologic law this one of reversion is not always active, especially if the variation is not marked and time and favorable environment are not factors in its continuance.

The tendency of nature to revert to the normal is, I believe, not fully recognized in all of its important bearings and especially as affecting disease and degeneracy. Diseased conditions are unnatural, and if not thoroughly fixed and inbred tend to revert to the normal and healthy. Families and races in which they are thoroughly fixed and constantly inbred pay the penalty of nature's law and cease to exist. Thus nature rebels against disease becoming a fixed inheritance and the beneficence of her laws is seen in the survival of the fittest through reversion to the healthy

normal, or extinction of the diseased family or race. This principle of reversion has been called "the most cheering fact met with in the study of heredity."

The testimony of the editor of *American Medicine* on this point is as follows: "This tendency to be normal is a biologic law of such paramount importance to physicians that it is astounding there is less heard of it. The influence of the environment in changing organisms is becoming more and more recognized and heredity reduced to a mere tendency to do as the parent did in like conditions. It wholly explains why defective parents if they live in a healthy normal manner may produce fine offspring."¹

It is a fair conclusion then and one borne out by careful observation that when an individual inherits a predisposition to disease, right living may remove the stain of inheritance, but when there is added to such predisposition an inheritance or acquisition of the habits of life which originally produced and nourished the disease the abnormality will be continued and increased.

Having now briefly considered the subject of heredity and some of the influences which modify it, we will endeavor to make application of our conclusions to the subject of delinquency and crime, at the same time introducing some of the testimony of sociologists upon the conditions which have produced and are producing a delinquent and criminal population.

We have just stated in substance that disease, *e. g.*, tuberculosis is not so much an inheritance as is tendency to disease. With equal force we believe it may be said that the tendency of the delinquent and the criminal so far as inheritance is concerned, is to repeat the sins of the fathers under like unhealthful and perverse conditions.

In studying criminals who are classified as born criminals and instinctive criminals and those most depraved, as well as those who are insane or epileptic, we find in many cases unquestionable evidence of the inheritance of direct tendencies to crime. We believe, however, that the views of extremists, such as Lombroso, are at the present day properly much in question and that these views, especially in regard to craniology, physiognomy and other departures from the normal type in the criminal classes, should

¹ *American Medicine*, 9, No. 24.

not be accepted without challenge, until better evidence can be adduced to show that these defects are a positive inheritance rather than a result of defective development due to bad environing forces, drunkenness, etc.

In the large majority of criminals, as seen in this country, I believe the inheritance if carefully studied and analyzed will be found to be not so much an inheritance of criminality as of depravity, disease and alcoholism, and sociologists well know that these conditions, whether inherited or acquired, are among the most constant and fruitful sources of delinquency and crime.

Ferri, in his work on "Criminal Sociology," says: "Thus the psychology of the criminal is summed up in a defective resistance to criminal tendencies and temptations, due to that ill-balanced impulsiveness which characterizes children and savages." In discussing heredity and the contagion of social environment as causative criminal factors, Ellis, in his book on "The Criminal," says: "Frequently the one element alone, whether the heredity or the contagion, is not sufficient to determine the child in the direction of crime." In view of the fact that the ranks of habitual criminals, are constantly replenished from the class known as occasional criminals and that it is the juvenile delinquent of yesterday that makes the full-fledged criminal of to-day, it is evident that in an attempt to stop the production of criminals we must work along the line of preventing truancy, vagrancy, petty theiving, etc., which are the first evidences of anti-social tendencies, or inadaptability to existing social surroundings.

While the subject of proper reforms in the treatment of the criminal classes is one of extreme interest and importance, it is not our desire in the short time allotted to this paper to attempt its discussion, nor a discussion of how to cure the criminal, but rather to study the young offender, the embryo-criminal, with reference to heredity and environmental tendencies, and further with reference to what has been and may be accomplished in preventing the formation of criminals. We stated a moment ago that the ranks of the habitual criminal are constantly replenished from the class known as occasional criminals, but it is the testimony of Morrison in his work on "Juvenile Offenders" that such is not the case unless the occasional criminal acquires criminal

habits in early youth. To prevent habitual crime then we must prevent the occasional young offender from acquiring fixed habits of crime in early youth, or better still we must prevent young children from entering the class known as misdemeanants.

What is the probability of the accomplishment of this end? A prominent Italian authority tells us that in Italy 80 per cent. of young criminals are normal children and that considerably less than half of these are the offspring of criminal parents. These young criminals, and the same is true of young offenders in our own and other countries, are such, largely as a result of degenerate social conditions, many of them having been not only left to the influence of a wicked environment, but systematically taught to lead a life of crime.

How are these conditions to be eradicated or their effects minimized? If we would eradicate a disease we must strike at its causes. If we would prevent the young offender from ripening into the criminal we must strike at the causes which are producing juvenile delinquency. According to the testimony of sociologists the causes we are seeking are the physical, mental and moral degeneracy of the individual both inherited and acquired and the miserable economic and social conditions of the parents and the community.

In speaking of the causation of crime, President G. Stanley Hall says:¹ "First, of course, comes heredity, bad antenatal conditions, bad homes, unhealthful infancy and childhood, overcrowded slums with their promiscuity and squalor, which are always near the border of lawlessness, and perhaps are the chief cause of crime." Again we quote the testimony of the same authority as to the relation of age to criminality:¹ "In all civilized lands, criminal statistics show two sad and significant facts: First that there is a marked increase of crime at the age of twelve to fourteen, not in crimes of one, but of all kinds, and that this increase continues for a number of years. While the percentages of certain grave crimes increase to mature manhood, adolescence is preeminently the criminal age, when most first commitments occur and most vicious careers are begun. The second fact is that the proportion of juvenile delinquents seems to be every-

¹ "Adolescence."

where increasing, and crime is more and more precocious."

Reports from the "Dr. Barnardo Homes" in London show that for a period of twenty-six years, 98.16 per cent. of children taken from the worst slums of London were trained to lead normal and valuable lives. The president of the Kurn Hattin Homes Farm School in Westminster, Vermont, the Hon. W. J. Van Patten, of my own city, in writing of the work accomplished in these homes, says: "It has been a surprise to me ever since we started this work to find that the boys who were taken from the worst homes and who had, until they were rescued, been under deplorable conditions, were readily changed to thoroughly good lads with no trace of the evils which came from their former environments."

What prospect is there of reforming the young criminal? The report of the reformatory at Elmira, New York, is to the effect that 85 per cent. of its criminal inmates are reformed, and that as a result of industrial discipline they are taught to lead self-supporting lives. Similarly, a recent report of the chief probation officer of the Children's Court in New York shows that of between 3,000 and 4,000 convicted young offenders, who were probated in the care of parents and guardians, 83.2 per cent. evinced normal moral tone.

In further answer of our last question and as bearing upon the causes of delinquency and crime in the young, we quote Dr. Cronin, of the New York Department of Health, who says: "Physical defects of one sort or another are the cause of bad habits, truancy and moral obliquity in later life. It is the physically defective who leave school early or become hopeless truants. Truancy is the first stage of a criminal career and by improving the physical condition of children we save many of them from the downward path." Horace Fletcher tells us that in Chicago young children are systematically trained to a life of crime, and it is well known that in other American cities, schools are in existence in which children are drilled in pocket-picking and the A. B. C's. of crime.

Results of practical experience in working to rescue the young from conditions of degeneracy, depravity and delinquency seem to point to the fact that heredity has been overestimated as a cause of these conditions, and that a blighting and poisonous

environment is oftenest the principal cause of an abnormal physical, mental and moral growth. The criminal is not so much the product of criminal parentage as of parentage which is diseased and degenerate, from bad living, alcoholism, etc., and his inheritance not so much one of criminal tendencies as of a diseased and degenerate physical, mental and moral constitution which will develop along lines of least resistance, according to the peculiar family and social influences in which he is reared.

Future effort in preventing delinquency and criminality should be directed to the proper nurture of the child, and an optimistic view as to probable results is certainly pardonable in those who believe that environment is a much more important causative factor than is heredity. Juvenal said, centuries ago, "The man's character is made at seven" and this view is accepted as sound by sociologists and educators to-day. To let no child grow up a criminal should be the aim of the state, the school, the church and of every good citizen, and while it is vain to expect the full accomplishment of this aim we have brought forward proof sufficient to warrant a belief that the factors which produce delinquency and crime in the young may be greatly minimized.

The terrible environing influences under which children are born and reared in the slums of great cities must as rapidly as possible be supplanted by more normal and healthful conditions. Idleness, drunkenness, disease and depravity must be battled against by letting in the light—the light of day, of sanitation, of education and of brotherly love. *Mens sana in corpore sano* must be the object of our efforts in behalf of degenerate and delinquent youth.

Training in correct habits and upbuilding of correct character must be undertaken for the army of children of the degenerate and delinquent classes. They must be snatched if may be as brands from the eternal burning, they must be washed, fed, clothed, warmed and educated, they must be loved and sympathized with, they must be filled with joy and hope, by giving them the innocent pleasures which make children happy and the opportunities from which their hopeless lives have been estranged, and they will in the majority of cases show a surprising tendency to the average or normal.

It is, of course, impossible to remove even a considerable percentage of these unfortunate youths from their vicious and degrading surroundings, yet unless they are mentally incompetent, in which case they should be cared for in an institution for feeble-minded children, experience teaches us that their physical inferiority and defective mental equipment may in a measure be overcome by improving the miserable and degenerate conditions of their existence.

In many country districts a new system has been adopted whereby all the children are carried, at the expense of the town, to larger and improved school centers, thereby securing more capable teachers and better general equipment than can be provided in the small and often sparsely settled districts. A similar method might be adopted for the overcrowded and unhealthy city slums, and the pale-faced and half-starved children—half-starved for want of food and sunlight and air, and a glimpse of nature—transported, at the public expense, into the suburbs or even into the outlying country and their training undertaken in an environment, which by its very contrast with the miserable surroundings of their home life, would tend to transform them from hopeless urchins into bright, decent appearing and hopeful boys and girls. Such a plan is feasible and the practical results of the work of the Kurn Hattin Institution, and other similar ones, warrant the belief that the problem of the slums would be half solved, the moment it is generally adopted.

Wherever undertaken, their education, which should be under the guidance of an enlightened and quickened humanitarian and Christian conscience, should be an education of the head, the heart and the hand, the development of intellect being less important than the development of character, and the value of both, dependent, to a high degree, on proper physical development. The time is coming, in fact, is at hand, in the minds of many, when the existence of juvenile crime will be considered an indictment of the educational system of any community.

While seeking by every means available to remove the causes which are stamping so many youths as misdemeanants, we must recognize the fact that punitive methods have been a failure, intensifying and rendering indelible the tendencies which proper

ameliorative and reformatory methods have been capable in great degree of removing.

While "both heredity and environment coöperate in producing modifications of physical structure and psychic powers" we record with satisfaction the growing tendency of modern sociologists to accord to the influence of heredity a place of secondary importance in accounting for juvenile delinquency and crime. Their testimony when analyzed seems to warrant the belief that acquired characters tend to become permanent, and that nature tends to the normal under the influence of proper environment.

In presenting this topic this evening, I am not attempting a thorough or scientific refutation of hereditarian theories, nor the presentation of anything new or original, but rather, impressed by the manifest and growing importance of the subject, to emphasize the value of the work and the testimony of some of the leaders of thought and of action, who are making a study of degeneracy, delinquency and allied conditions with a view to removing the causes which are responsible for their existence.

REPORT OF THE COMMITTEE TO INVESTIGATE THE
COMPARATIVE VALUE OF THE FIRST
DEGREE IN OUR AMERICAN
COLLEGES.¹

SECOND REPORT—THE PRESENT REQUIRED QUALIFICATIONS AND
SOME SCHOLASTIC IRREGULARITIES GROWING THEREFROM.

Your committee planned to prepare a single preliminary report that would enable it to formulate a fair standard for the educational value of the course leading to the first degree, as a proper preparation for entering on the study of medicine. This report was presented to you at Chicago last November, but it falls short of its purpose. The subject is more complex than it appeared at the first, and there are other questions which must be considered before any standard can be defined.

Thus, any scheme suggested must be workable; it must adjust itself to the existing order. Consequently, a precise statement of the existing conditions dominating the educational order preparing a physician must be formulated. Your committee does not know any better method to place this before you than to quote extensively from an article in the January, 1906, Bulletin of the University College of Medicine of Richmond, Va., prepared by Dr. William R. Miller, the Proctor. The whole article is worthy of careful reading.

Every state in the Union has legislated to a greater or less extent for the regulation of the practice of medicine. That every doctor in the United States has, therefore, a more or less direct personal interest in the character of some of these regulations is quite evident to the most casual observer, but that the direct personal interest of any one doctor necessarily extends beyond the confines of his own state will not be so readily recognized without further reflection and investigation.

Let us proceed, therefore, to a consideration of this phase of the subject by taking up for comparison the medical practice acts of a few of the states and observing how some of the regulations are of such a character as to operate quite powerfully, not alone on their own citizens, but on those of every other state. But while doing this let us bear in mind the one potent fact that *doctors do not, nor will they ever, invariably locate for practice in their native*

¹ Presented to the American Academy of Medicine, Boston, June 2, 1906.

state. * * * * * Let us remember, then that these provisions apply to all comers from whatever state, and that no young man who aspires to be a doctor can ever be absolutely certain in what part of the United States conditions of opportunity or health may finally lead him to locate.

The Laws.

1. Texas provides for an examination in certain specified branches of medicine.

2. Virginia provides for examination of all applicants who shall produce diplomas from some medical college chartered by the state or territory in which the same is situated.

3. Pennsylvania provides for examination of applicants presenting satisfactory proof of possession of a competent common school education and of a diploma from some legally incorporated medical college of the United States.

4. Illinois provides for proof of graduation from a "Medical college or institution in good standing as may be determined by the Board."

5. Michigan provides for examination of applicants having a diploma "from a legally incorporated, regularly established and reputable college of medicine within the states, territories, districts and provinces of the United States * * * * * having at least four years' course of seven months in each calendar year, as shall be approved and designated by the Board of Registration in Medicine: provided that such applicant shall have, previous to the beginning of his course in medicine, a diploma from a recognized and reputable high school, academy, college or university having a classical course or shall pass an examination equivalent at least to the minimum standard of preliminary education adopted and published by the board."

From the laws of these five states one can obtain a fair view of the development of the idea that the state should exercise police supervision over the practice of medicine and we can by comparison, also, see how the laws of one state may operate almost exclusively within its own borders, while those of another state may, and actually do, so operate as directly to effect citizens of every other state.

[After showing that the medical student must fit himself for the greater requirements or he cannot be recognized as a practiser everywhere in the country, he continues:]

Every medical student in every state, whether cognizant or ignorant of these laws, is therefore required by them to make his choice, whether he will tie himself down to a limited field [by only complying with the lesser requirements of his own state] or be free [by taking a course to meet any requirement.]

Each medical college in every state is obliged, with a full knowledge of the circumstances before it, to choose its course, whether it will require more of its students and thus render them free, or require less and thus bind them fast.

All other schools will also be affected, from the primary up, because sooner or later they will be called upon to decide whether or not their courses shall be so shaped as to qualify such of their students as desire to enter upon the study of medicine under these regulations at the proper time.

From this it will be seen that the *act of a single legislature on this subject may have almost as far-reaching authority as an act of congress* would have and that every member of the medical profession may be and, in fact the candidates for membership in it are directly and personally concerned in every step taken for the regulation of the practice of medicine anywhere, whether by legislature or State board.

* * * * *

It is a fact that this movement for an educated medical profession *has been recognized by legislation of some character in every state* and we have seen that a *kind of uniformity as to its extent* has been determined practically for all the states by the far-reaching legislation of a few states.

This latter fact has not been generally accepted, however, and there is great confusion in consequence. The interests involved are great and the leaders of the movement are now struggling with the problem of how to secure a recognized uniformity through some source which will command confidence in its wisdom and fairness, and thus meet with universal acceptance and cooperation.

* * * * *

Americans are sure to resent legislation that is forced upon them by those who are not their own chosen representatives and it is true that many who would be in sympathy with advanced regulations as to education of doctors if enacted by some legislative body to which they acknowledge allegiance or if brought about by some influential voluntary association whose motives they understand, now regard the far-reaching legislation of some states with little enthusiasm if not with actual resentment.

This undesirable and unphilosophical condition has arisen, in part at least, from the predominance of the commercial idea in guiding the educational system of our land. During a period in the history of our country when there was an inflation of values and the speculative spirit ruled, physicians became infected and made use of the same methods in organizing and conducting medical schools. It must be recognized that there have been medical schools organized for purely commercial ends; that in some of these, those methods of the shop and the market characterized as shrewd, have been employed. Then other schools have fought fire with fire until the stamp of the college—the diploma—was looked upon with suspicion and the boards of examiners set about to force men to be honest and honorable by law. The result is

the present inelastic and unphilosophic scheme as made manifest by Dr. Miller.

It would not be fair to place all the blame for the low standard of medical education on the conditions just stated. Indeed these are but contributing causes. The trend of educational methods opened the way to permit these causes to be operative. Some one has said that the insufficient endowment of our schools and colleges has been a blessing, for it compelled them to keep in touch with the people and to furnish such instruction as the people demanded. Whether a blessing or not, the statement accurately describes the force impelling much of our modern educational methods.

Your committee does not deem itself competent to pass judgment upon these methods and will produce expert testimony. Prof. Frank H. Wood, in an address on the "Problem of Commercialism in the Church," before the Auburn Theological Seminary,¹ says:

There are two points of view from which one can regard the modern movement toward the elective system of education. So far as the movement towards elective means appealing to the human spirit, it is good. But so far as the elective system is based upon pure utilitarian motives, it is vicious. Incidentally, the commercial value of the so-called commercial subjects has been entirely overestimated. The spirit that would direct the young to education for commercial purposes, has brought this commercialism into our lives. The fathers are at fault, the boys must study something in practical use.

This thought of *practical* has narrowed the curriculum for medical studies and must be guarded against in any suggestion of coordinating the college with professional studies.

Prof. Hugo Munsterberg, of Harvard, well says in his suggestive volume on "American Traits," "No amount of information can be substituted for training."² In the long race, those who enter our profession trained will outstrip those who, possessing greater information, have not the training, and this thought must be always uppermost. We are tempted to quote more at length from another chapter in the same volume (p. 58ff.). After speaking of the elective system as the result of two tendencies, 1. "The desire to adjust the school work to the final purposes of the indi-

¹ Auburn Seminary Record, March 10, 1906.

² Page 91.

vidual in practical life, which means beginning professional preparation in that period which up to this time has been given over to liberal education." And 2. "The desire to adjust the school work to the innate talents and likings of the individual," and, commenting on these tendencies, he continues:

Neither tendency stands alone in our social life. In short the one fits the mercenary spirit of our times, and the other fits its spirit of selfish enjoyment. From the standpoint of social philosophy, mercenary utilitarianism and selfish materialism belong together; everywhere do they grow together and everywhere do they fight together against the spirit of idealism. * * *

The argument which urges the earliest possible beginning of specialization is thus a natural one, and the conviction that the struggle for existence must become more difficult with the growing complexity of modern life may encourage the view that the remedy lies in professional training at the expense of all other education. * * *

But even if I shape my school according to such schemes, do I really reach, after all, the goal at which I am aiming? Does not the utilitarian spirit deceive itself? And even if we do not acknowledge any other standpoint than the mercenary one, is not the calculation very superficial? The laborer in the mill may be put, sometimes, by the cruelty of the age of steam, in a place where his personality as a whole is crippled, and only one small function is in use; but the higher the profession, the more nearly is the whole man working in every act, and the more, therefore, is a broad general education necessary to practical efficiency. The biologists tell us that the play of animals is a biologically necessary preparation for the struggle of existence, and that in a parallel way, the playing of the child is the wise scheme of nature to prepare man in some respects for the struggle of life. How infinitely more necessary for the battles of manhood, though seemingly of no practical use than such play, is the well-planned liberal education!

The higher the level on which the professional specializing begins, the more effective it is. * * * Moreover, we are not only professional wage-earners; we live for our friends and our nation; we face social and political, moral and religious problems; we are in contact with nature and science, with art and literature; we shape our town and our time; and the experience is common to every one, to the banker and the manufacturer, to the minister and the teacher, to the lawyer and the physician. The technique of our profession, then, appears only as a small variation of the large background of work in which we all share; and if the education must be adapted to our later life, all these problems demand a uniform education for the members of the same social community. The division of labor lies on the outside. We are specialists in our handiwork, but our heartwork is uniform, and the demand for individualized education emphasizes the small differences in our tasks and ignores the great similarities.

It would not be difficult to add similar opinions from others

whose point of view is that of the educator, but this must suffice as it enables us to formulate our propositions.

In the discussions of the proper preparation for the practice of medicine; the necessities of the preliminary education should be separated entirely from the requirements of the technical preparation.

Note the distinction is emphasized as to the discussion of the subject. Nature's classification seldom divides by a geometrical line; there is a blending at the edges, and in practice, the sharp delimitation may not be possible. In the discussion, however, unless the distinction is made absolute, a confusion of ideas is apt to result.

Again, and of equal importance:

A liberal education depends more upon the way in which a subject is taught than upon the subject itself.

It is possible to permit a wise selection, and give some freedom of choice in choosing subjects to be used for mental development. The choice depends more upon the mind of the instructor than the desires of the pupil. But the knowledge of facts incidentally acquired in the culture course may directly assist in the subsequent professional study.

It must be kept in mind also, that under proper conditions and with a skilled teacher, the technical presentation of professional subjects may, incidentally, contribute to mental development. Consequently, development can be continued by the technical studies. *But this can be done only at the expense of the proper presentation of the technical study.* The student suffers fully as much by the use of technical studies for development, as he does by using development studies presented from the technical point of view. This does not mean that a knowledge of facts may not be acquired during that educational period devoted to mental development which will be practically useful in the subsequent period of applied instruction; nor that the mind will cease developing after the preparatory educational processes have ceased. But here, as elsewhere, that which is properly prepared is capable of the most perfect end product.

The curriculum of our medical colleges to-day, with a very few exceptions, require elementary chemistry, biology and physics in the first year. There is no use to discuss whether this is desira-

ble: it is a fact that we cannot alter. As a consequence it is not necessary to insist upon a study of these subjects in the preliminary course. It may be just as well to make use of other subjects to broaden the student's horizon and to give him a greater adaptability among men.

If these propositions are true, and we think they are demonstrable, then the universities in our land, and by universities we mean those large institutions of learning which have one or more professional departments in addition to the college department and the post-graduate work in the same studies taught in that department. We think that these universities should be the guardians of the American educational system, and be careful to maintain the line of demarkation in its academic distinctions. The plan adopted by a number of institutions, which permits the academic student in his senior year to elect the studies of the medical department and receive his bachelor degree after completing a year of his medical studies, is an infraction on this general principle which appears to have been devised under the pressure of expediency. The plan devised by some other universities of two years' medical preparatory study in the academic department, then a bodily transferal to the medical department and the granting an A. B. degree in the middle of that course, seems also to be unwise from a scholastic standpoint. It is granted that a youth with two years' college training is better fitted to study medicine than with none at all and this effort is commendable. The proverb—to call a spade a spade—has respectable antiquity, for it is attributed to Aristophanes. It does not seem to have been followed in this granting a degree in arts for two years' college work plus an indefinite and indeterminate quantity, while other students are required by the same college to give four years' work for the same degree. The standard of value seems to be ill defined and represents a condition that would not be tolerated among honorable business men in affairs of commerce.

Your committee recognizes the necessity of limiting the time in education of a physician and is of the opinion that the courses should be so arranged as to consume less time than at present, certainly for bright students. It admits that the question is a difficult one but believes the problem can be solved if it be care-

fully formulated and presented to expert educators, and that the proper solution will be free from the defects indicated in the plans now in vogue.

We also recognize that the rights of the college, with no university affiliation, should be considered. Not that these institutions should stand in the way of progress, but their place in the history of our land; their present position of usefulness to the country; their value to thousands who need their training and can receive it in no other way; these and other conditions demand a careful study of all that effects their prosperity in the study of any general educational plan. In this connection we quote with approval from President Eliot's last report:

An important aspect of this matter [the possession of a preliminary degree in arts or science by students in the law or medical departments of universities] is the fact that the strongest support any university can give to the preliminary degrees in arts and science—its own or those of other institutions—is the requirement of such a degree for admission to its professional schools. There would be no question about the future maintenance of that peculiarly American educational institution called a college, if the universities of the country would require an A.B. or an S.B. for admission to all their professional schools.

These are some of the conditions in our educational world to-day and some of the evils. We do not care to attempt a solution; that must come from expert educators. We suggest, should this report meet your approval, that you order it to be sent to a number of educators with a request for opinions and suggestions and that a report be drafted upon the replies and presented to you at the earliest opportunity.

DISCUSSION.

Dr. J. U. Barnhill, Columbus, Ohio:

The committee should, it seems to me, be continued for further consideration of the subject and a report next year. It might be well if it would not only attempt to determine the amount and character of study and training entitling a person to the bachelor of arts degree, but also to cooperate with leading educators as suggested with a view of securing recognition for such standard in literary and medical colleges. With this end in view something might be done, it seems to me, through a conference with a similar committee of the Confederation of Licensing and Examining Boards, and especially with the Council of Education of the American Medical Association. My thought is that such a

conference would be not only helpful in determining the comparative value of the first degree and also that of different studies, but that it would contribute to a more general recognition and heeding of the results of their labor.

Dr. Wheelock, Superintendent of Public Instruction in New York, says that in his state the question of a combined baccalaureate and medical course is under discussion with a view of giving recognition to an elective medical course of one year conducted in a literary college when the same has been pursued as a part of the course leading to the arts degree. He expressed the belief that the New York Board of Regents would be willing to cooperate with other boards in formulating a combined course leading to the two degrees, one maintaining the cultural value of the old curriculum and preserving the full four years' medical course.

The state medical boards are very properly insisting that the medical course shall consist of four full years' study in a medical college, but many of our large universities matriculate their prospective medical students in the medical course at the beginning of their senior literary year. Our committee may well inquire as to whether such combined course satisfies present demands for culture and professional equipment. It may help the independent literary and medical colleges in solving the question of the advisability of their establishing such combined baccalaureate and medical course. Such courses are carried out in the large universities by permitting the studies of the first medical year to be pursued as electives in the literary course, or, what amounts to the same thing, the major part of the first medical year is included in the fourth year of the literary course. If such combined literary and medical course is found by our committee to have the cultural value entitling to the literary degree, then I believe such course should be provided. Its maintenance would encourage more prospective medical students to avail themselves of the advantages of a literary education and thus promote education and elevate the medical profession. If such course is to be recommended by the Academy with a view of encouraging its general adoption, I believe something may be done by cooperation with the Confederation of Licensing and Examining Boards and also with the Council of Education of the American Medical Association.

Dr. Winfield S. Hall, Chicago :

There is no small amount of misunderstanding upon the question of allowing credit in medical colleges for work done in literary colleges. There seems to be a misapprehension upon the point of difference between work done in literary institutions and literary work. Most of the more thoroughly equipped literary institutions have very broad courses in science that duplicate up to one year all the work done in medical schools, except that in human dissection. Those medical schools that wish to give credit for one year's work done in those literary schools which give courses in chemistry, histology, embryology and physiology courses, which are really medical in scope as well as in subject-matter, certainly have strong arguments for their

position. On the other hand, the idea that medical schools can for a moment consider the giving of a whole year of time credit to men having the A.B. degree, to men whose studies have been wholly linguistic, literary and historical, and not at all medical, seems to me untenable. When it is understood by medical examiners, that some of the literary institutions are giving thorough courses in chemistry, physiology, histology and embryology in fully equipped laboratories under the direction of specialists it will be seen that credit can be given for one year without shortening the medical course.

The Committee will be only too glad to cooperate with the Committee of Confederation of Licensing and Examining Boards and with the Committee of the American Medical Association.

Dr. Leartus Connor, Detroit :

I would like a more definite statement of the meaning of the words "To Investigate the Comparative Value of the First Degree in Our American Colleges." Does this mean the degree of A.B.? Does "American Colleges" mean American medical colleges, or American literary colleges, or both? Are we talking about degrees of literary institutions, or degrees of medical colleges?

Dr. Charles McIntire, Easton, Penna. :

The committee was to report upon the value of the first degree in literary colleges, and there is no reference to medical colleges. The purpose of the committee in its relation to the Academy is to ascertain if there be any institutions in the country whose degree of A.B., or more broadly their first degrees, does not represent the amount of study considered by the Academy sufficient preparation for the study of medicine. The Board of Regents of New York called the attention of the Academy to the fact that the value of the first degree in American colleges varied greatly, in some instances not even representing a high school course. A list of colleges was to be prepared whose degree would not be considered acceptable by the Academy. We found that there must be a standard which was workable in the existing conditions of medical education of the land, and we have been trying to find a curriculum which can be accepted by the Academy as fairly representing a culture course for which the Academy stands.

Dr. Leartus Connor:

Some years ago the question as to the relative value of an A.B. degree came before the Council of this Academy and the secretary went over the matter with much thoroughness. The names of literary colleges with their requirements were brought before us that we should know who among those applying for fellowship in this body had an A.B. degree worthy of consideration. In the statement brought to us to-day, little of a specific nature has been presented. The work is one of extreme value but beset with untoward difficulties. The desire to get something without paying for it, enters here as everywhere else. In some literary institutions the degree of A.B. is offered to students whether they spend a few months or a few years in study. If

this question could be settled by the adoption by the Academy of a uniform standard for all colleges it would help all in estimating the value of the A.B. degree in any specific college.

Again, our colleges and educational systems associated therewith, are more or less crippled by traditions of the past. Like other venerable institutions they lag behind the needs of the people whom they serve.

We all know that literary colleges are the product of ages in which there was but a single educated class—the priestly. Out of this class grew doctors, lawyers, teachers, and all who lived by mental rather than physical work.

While there have been great changes with the passing centuries, these colleges and modern educational systems, public or private, are mainly dominated by the idea of mental training rather than that of the "entire person." Hence present courses of instruction lead insensibly but nevertheless, powerfully, to intellectual rather than physical callings. Must not this end in disaster to a country and age that demand an education of all children? Surely all cannot live by mental trades.

Kindergarten, manual training, physical culture and allied movements indicate that this has been felt and point the way towards farther development in the same direction. While the A.B. degree should never stand for industrial training as such, more than for any particular trade, it should lay an immutable foundation for all trades and enable each student to wisely choose his own whether mental or physical or both combined.

Experience confirms the dicta of Sociological Science that "the training of the entire person (not merely the mind) should dominate educational systems from beginning to end."

Who shall make such comprehensive study of the institutions giving the A.B. degree as to tell us how completely each has cast aside tradition and adopted scientific methods for developing our youth to the best type of American citizens?

TRANSACTIONS.

BANQUET HALL, "THE BRUNSWICK."

BOSTON, June 2, 1906.

The thirty-first annual meeting of the American Academy of Medicine was called to order at 11.20 A.M., by the president, Dr. Donly C. Hawley.

The Secretary read the minutes of a portion of the last annual meeting when a motion prevailed that the reading of the minutes be omitted, and that they be approved as published in the Bulletin. The Secretary read the report of the Council as follows:

The Council congratulates the Academy upon the completion of another year. The last meeting was signalized by the largest addition made to our membership in any one year, and by the experiment of corresponding delegates. This plan apparently will be successful in solving the question of giving the privileges of the floor to those who are not physicians but are interested in the topics under consideration and can contribute to the discussion some of the other parts that should be heard in any scientific investigation. The method of inviting and registering these has been made more systematic this year. It is hoped that, in time, it will be looked upon as a prize to be sought for.

The census statistics of the Academy for the year are:

DATA FOR STATISTICS.

Membership.

Elected at Chicago.....	143	
Failed to pay initiation fee.....	18	
		125
Resigned.....	3	
Died.....	22	
On suspended roll.....	5	
		30
Net increase.....		95
Number on roll:		
Fellows.....	944	
Honorary members.....	21	
		965

Our necrologic roll is unusually large, due in part to the discovery of unreported deaths in revising the roll for publishing in the June Bulletin

(1) Henry L. Joy, Marshall, Mich. Died 1892. A.B. Union, 1844; M.D. Jefferson Med. Coll., 1849; elected 1889.

- (2) W. W. L. Phillips, Trenton, N. J. Died April 17, 1896. A.B. Princeton, 1848; M.D. Jefferson Med. Coll., 1851; elected 1891.
- (3) James M. Salisbury, Russelville, O. Died 1898; A.B. Marietta, 1849; M.D. Medical Coll. of Ohio, 1851; elected 1889.
- (4) Samuel T. Storer, New Concord, O. Died December 13, 1902; A.B. Muskingum, 1853; M.D. Cleveland Med. Coll., 1860; elected 1892.
- (5) H. P. Stearns, Hartford, Conn. Died May 25, 1905; A.B. Yale, 1853; A.M. Yale, 1856; M.D. Yale, 1855; elected 1904.
- (6) George E. Smith, Oberlin, O. Died August 3, 1905; A.B. Western Reserve, 1855; M.D. Med. Coll. of Ohio, 1862; elected 1891.
- (7) A. W. Johnstone, Cincinnati, O. Died September 29, 1905; A.B. Centre, 1872; M.D. Univ. of the City of N. Y., 1876; elected 1889.
- (8) John R. Buist, Nashville, Tenn. Died October 24, 1905; A.B. South Carolina, 1854; M.D. Univ. of the City of N. Y., 1857; M.D. Bellevue, 1858; elected 1889.
- (9) Helen F. Warner, Detroit, Mich. Died October 30, 1905; A.B. Vassar, 1868; M.D. Univ. of Michigan, 1872; elected 1889.
- (10) George R. Morehouse, Philadelphia. Died November 19, 1905; A.B. Princeton, 1848; M.D. Jefferson, 1850; M.D. Univ. of Pennsylvania, 1880; elected 1884.
- (11) Ambrose L. Ranney, New York. Died December 1, 1905; A.B. Dartmouth, 1868; M.D. Univ. of the City of N. Y., 1870; elected 1889.
- (12) De Sausure Ford, Augusta, Ga. Died February 5, 1906; A.B. Univ. of Georgia, 1855; M.D. Univ. of Georgia, 1856; elected 1896.
- (13) Addison H. Foster, Oak Park, Ill. Died March 3, 1906; A.B. Dartmouth, 1863; M.D. Columbia, 1866; elected 1888.
- (14) Leonard L. Skelton, Chicago. Died March 14, 1906; A.B. Northwestern, 1885; A.M. Northwestern, 1887; M.D. Chicago Med. Coll., 1889; elected 1905.
- (15) William E. Wirt, Cleveland, O. Died March 19, 1906; U. S. Naval Acad., 1886; A.M. (by examination) Wooster, 1889; M.D. Columbia, 1889; elected 1892.
- (16) Elias DeSpelder, Zeeland, Mich. Died April 11, 1906; A.B. Hope, 1879; M.D. Univ. of Michigan, 1882; elected 1892.
- (17) Charles F. Moulton, West Roxbury, Mass. Died April 24, 1906; A.B. Bowdoin, 1887; M.D. Dartmouth, 1890; elected 1894.
- (18) Jahn C. Pegram, Jr., Providence, R. I. Died April 26, 1906; A.B. Brown, 1892; M.D. Harvard, 1897; elected 1898.
- (19) Henry H. Hahn, Youngstown, O. Died August 28, 1906; A.B. Univ. of Michigan, 1875; M.D. Long Island Coll. Hospital, 1876; elected 1892.
- (20) Joshua N. Speed, Rushville, Ill. Died November 5, 1900; A.B. Centre, 1853; M.D. Univ. of Iowa, 1860; elected 1892.
- (21) C. George Jones, Jacksonville, Ill. Date of death not known; A.B. Illinois College, 1854; M.D. St. Louis Med. Coll., 1868; elected 1889.
- (22) William H. Focht, Tiffin, O. Died May 12, 1906; B.S. Heidelberg, 1880; M.D. College of Physicians and Surgeons, Baltimore, 1883; elected 1893.

The Council recommends that we express our sympathy with our Fellows who have suffered in the San Francisco earthquake by remitting their dues and subscriptions to the Bulletin for the current year.

At the last executive session of the 1905 meeting, the following resolutions were referred to Council:

Resolved, That the Secretary suggest to the Committee on Program for each year that papers on topics relating to the history of medicine be prepared and that the period be indicated, to be presented in the papers of any meeting.

Resolved, That the Academy recommend the medical colleges to institute chairs on the History of Medicine.

The Council recommends for the first part: That in view of the fact that medical history is included among the subjects submitted by the Committee on Program as the field of activity of the Academy, the purpose of this resolution can be discussed to better advantage at that time. As to the second part: The Council deems it not to be advisable to take action at this time. It recommends that the resolutions be laid on the table.

As to the amendments proposed at the last meeting:

ART. III. SECTION 2.

4. In lieu of the baccalaureate degree from a recognized institution, conditions of eligibility may be satisfied as follows: If the candidate is a medical graduate of at least twenty years standing, and has during that time made notable and scholarly contributions to medical science, and has been active along lines in harmony with the ideals of the Academy, he may be elected to fellowship in the Academy; provided that not more than ten fellows shall be elected under this provision at any one meeting.

Remember the present provision 4, making it 5.

The Council, after careful consideration, believes that the present broad provision in the Constitution for the exceptional applicants for fellowship permitting as it does the very action contemplated by the proposed amendment, is preferable to placing this section in the Constitution. It recommends that the proposed amendment be not adopted.

ARTICLE VII.—REVENUE.

SEC. 1. The sources of revenue shall be the initiation fees, dues and the certificates of membership.

The initiation fee of five dollars shall be paid before admission and registration.

The annual dues shall be three dollars, payable at each annual meeting; the payment of the annual dues shall entitle the Fellow so paying to receive the Bulletin for the current year; the neglect to pay the annual dues for three successive years shall cause the name of the Fellow so neglecting to be entered upon a separate roll, to be known as the list of suspended Fellows; provided that all Fellows elected previous to or during the meeting of 1898 shall not be liable to this penalty.

If any Fellow pays the sum of twenty-five dollars at one time, he is freed from the payment of any subsequent annual dues, and is entitled to receive the Bulletin.

If any Fellow admitted during or previous to the meeting for 1898 elects to pay no dues to the Academy, he shall not receive the Bulletin.

The subscription price of the Bulletin (to those who are not Fellows) shall be three dollars a year.

SEC. 2. The money received from the payment of life dues shall be invested as the Council may direct and the interest only can be expended.

After careful consideration, the Council suggests change in the wording. It recommends the following to be accepted as a substitute and adopted:

ARTICLE VII.—REVENUE.

Section 1. *Initiation Fee.*—The initiation shall be five dollars, and shall be the only fee for the first year. It shall accompany the application for admission.

Section 2. *Dues.*—A fee of *three dollars* shall be due at each annual meeting; the neglect to pay this fee for three years shall cause the name of the Fellow so neglecting, to be removed from the regular roll and to be entered upon a separate roll to be known as the list of suspended Fellows. Fellows paying this fee shall be entitled to all the publications of the Academy as issued. Provided, That all Fellows elected previous to or during the meeting for 1898, shall not be liable to this penalty, but shall not receive the publications unless the dues are paid.

Section 3. *Commuting Dues.*—If any Fellow pay the sum of twenty-five dollars at one time, he is freed from the payment of any subsequent annual dues and is entitled to receive the publications of the Academy. The money received for the payment of life dues shall be invested as the Council may direct and the interest only can be expended.

Section 4. *Publications.*—The Council may authorize the sale of the publications of the Academy. The prices asked shall not be less than the sum asked from the Fellows through annual dues.

Not a year passes but a Fellow requests to have his resignation presented because the infirmity of added years is causing him to relinquish his connection with the profession in its organized capacity. Frequently these requests come from those who have been active in directing the affairs of the Academy. While it is possible for every one to commute his dues and thus secure a life membership, this opportunity is not made use of by all. The Council, consequently, presents for your consideration at your meeting in 1907 the following proposed amendment to the Constitution:

To add a section to Article VII of the Constitution, to be known as Section 4, renumbering the present Section 4, Section 5.

Section 4. *Retired Fellows.* Any Fellow of *twenty* years standing, who shall have arrived at the age of *seventy* years, may be relieved of the duties

and obligations of actively participating in the affairs of the Academy by a vote of the Council upon the written application of the Fellow so electing. This fact shall be noted in the roll and those so relieved shall be designated retired Fellows.

On motion of Dr. Leartus Connor and Augustus P. Clarke, the report of the Council was accepted. The recommendations of the report were considered seriatim.

It was moved and carried unanimously that the recommendation of the Council to remit the dues of the Fellows suffering from the San Francisco earthquake be adopted.

The resolutions regarding papers on historical subjects and the institution of professorships of history in medical colleges, was tabled upon motion.

The following applications for admission approved by the Council, were presented to the Academy.

Joseph A. Link, Springfield, O.	J. T. Bullard, New Bedford, Mass.
Inez Louise Clarke, Cambridge, Mass.	James C. Connell, Kingston, Ontario.
Augustus W. Buck, Fall River, Mass.	William H. Lathrop, Lowell, Mass.
Richard T. Bang, New York.	William S. Baer, Baltimore.
J. N. Simpson, Morgantown, W. Va.	John E. Fahy, Philadelphia.
Henry P. Loomis, New York.	John M. Gile, Hanover, N. H.
Edward Reynolds, Boston.	Gaylord P. Clarke, Syracuse, N. Y.
Wm. G. Le Boutillier, New York.	Stephen M. Roberts, Nantucket, Mass.
Charles B. Kelsey, New York.	John M. Wheeler, Burlington, Vt.
Stephen E. Webber, Calais, Me.	Fred K. Jackson, Burlington, Vt.
Myron L. Chandler, Barre, Vt.	Carlotta M. Swett, Bangor, Me.
M. M. Johnson, Hartford, Conn.	Lyman Allen, Burlington, Vt.
Walter L. Munro, Providence, R. I.	Alice G. Bryant, Boston.
J. M. Dutton, Westfield, Mass.	Genevieve Clarke, Cambridge.
Henry W. Bettmann, Cincinnati.	Henry Beates, Jr., Philadelphia.
John G. Morris, South Boston, Mass.	C. Z. Barker, Newport, R. I.
Harvey G. Willard, Chicago.	A. F. Miller, Providence.
	John E. Donley, Providence.
	Herlwyn R. Green, Providence.

The Secretary was instructed to cast the ballot in favor of the applicants and they were elected.

The Secretary read the resignations of:

W. S. Dennett, New York.	William Scheppergrell, New Orleans.
Archibald McLaren, St. Paul.	George E. Shoemaker, Philadelphia.
John B. Murphy, Chicago.	Hiram Woods, Baltimore.

On motion the resignations were accepted.

The report of the treasurer, showing a balance of \$211.05 in the current expense fund and of \$180.00 in the permanent fund, was read and on motion referred to an Auditing Committee.

The chair appointed Drs. F. Thomas Kidder, of Vermont, W. R. White, of Rhode Island, and J. U. Barnhill, of Ohio, on the committee.

The chair appointed Drs. F. H. Gerrish, of Maine, Helen C. Putnam, of Rhode Island, and Leartus Connor, of Michigan, as the Nominating Committee.

The proposed amendments to the constitution were presented to the Academy, the first, to Article II, Section 2, was not accepted, and the amendment was lost. The second to Article VII. On motion, the substitute proposed by the Council was accepted in place of the amendment as proposed, and the amendment was then adopted.

This completed the business and the Academy went into open session to listen to reports of committees.

Dr. Bertha M. Brown, of the State Normal School at Hyannis, Mass., was introduced to the Academy as a corresponding delegate.

The Committee to Investigate the Comparative Value of the First Degrees in our American Colleges presented its second partial report, reporting on "The Present Required Qualifications and Some Scholastic Irregularities Growing Therefrom."¹

Dr. Alex. R. Craig moved the acceptance of the report, the adoption of the recommendation and the continuance of the committee. It was duly seconded and referred to the Council. The report itself was discussed by Drs. J. U. Barnhill, of Columbus, O.; Winfield S. Hall, of Chicago; Leartus Connor, of Detroit; and Charles McIntire, of Easton, Pa.

The hour for recess having arrived, the other reports were deferred as unfinished business.

The secretary read an invitation from the Bath Trustees of the City of Boston for the Fellows of the Academy to visit the Public City Baths, which was accepted with thanks.

A recess was taken until 3 P.M.

¹ See p. 546 of this number.

The Academy reconvened at three o'clock. The first paper of the session was on "Senility," presented by Dr. A. L. Benedict, of Buffalo, and was discussed by Drs. J. W. Grosvenor, of Buffalo; J. T. Searcy, of Tuscaloosa, Ala.; Casey A. Wood, of Chicago; Leartus Connor, of Detroit; A. H. Tuttle, of Cambridge, Mass.; J. M. Spalding, of Portland, Me.; Woods Hutchinson, of Arrowhead Springs, Cal.; F. H. Gerrish, of Portland, Me.; William R. White, of Providence, R. I.; and was closed by Dr. Benedict.

"Manual Training for Medical Students and the Principles of Psycho-therapy," was the next paper, presented by Dr. Gershom H. Hill, of Des Moines, Ia. The paper was discussed by Drs. Casey A. Wood, of Chicago; Leartus Connor, of Detroit; Woods Hutchinson, of Arrowhead Springs, Cal.; Augustus P. Clarke, of Cambridge, Mass.; and Dr. Hill in closing.

Dr. James A. Spalding, of Portland, Me., read an historical paper entitled "The Friendship of Nathan Smith and Lyman Spalding." The paper was discussed by Dr. G. E. Fuller, of Monson, Mass.

The Academy adjourned to meet at 8.00 P.M., when it re-assembled, First Vice-President Dr. Helen C. Putman presiding, and listened to an excellent address by the president on "Heredity and Environment as Causes of Delinquency and Crime."¹

At the conclusion of the address, the Academy adjourned until Monday morning.

BANQUET HALL, "HOTEL BRUNSWICK,"

BOSTON, June 4, 1906.

The Academy was called to order in executive session by the president, Dr. Donly C. Hawley.

The Council presented a report containing a number of recommendations, and it was resolved to act upon each recommendation as it was presented, without waiting for the report to be read first in entirety.

The report is as follows:

The Council desires to present the following supplementary report:

(1) The resolution referred to is as follows:

That the report of the Committee on the Comparative Value of the First Degrees be received, its recommendations adopted, and the committee be continued.

¹ See p. 533 of this number.

The Council reports the resolution back with a recommendation that it be adopted.

On motion the recommendation of the Council was approved and the resolution adopted.

2. On the syllabus of the field of the Academy as presented by the Committee on Program.

FIELD OF ACTIVITY OF THE AMERICAN ACADEMY OF MEDICINE.

I. MEDICAL EDUCATION:

- a* Preparation for study of medicine.
- b* The medical curriculum; subject matter, correlation of subjects, and methods of presentation.
- c* Relation of medical to literary and scientific education of the colleges.
- d* Medical nomenclature.
- e* Post-graduate schools and diplomas.

II. MEDICAL ORGANIZATIONS:

- a* Associations and societies.
- b* Fraternities.
- c* Colleges.
- d* Hospitals, dispensaries.

III. MEDICAL HISTORY AND LITERATURE:

- a* History of medical education.
- b* History of medical licensure.
- c* History of individuals, biography.
- d* Medical libraries.
- e* Medical journalism.

IV. MEDICAL ETHICS:

- a* Relation of the physician to his patient.
- b* Relation of physicians to each other.
- c* Relation of the profession to the public.

V. THE MEDICAL PROFESSION AND THE SCHOOLS:

- a* Medical examination of school children.
- b* Medical inspection of schools and buildings.
- c* Teaching physiology and hygiene in the schools.

VI. HYGIENE AND SANITATION:

VII. MEDICAL LEGISLATION AND MEDICAL LICENSURE:

- a* Reports of the laws in force.
- b* Changes proposed.

VIII. THE RELATION OF MEDICINE TO OTHER PROFESSIONS:

- a* Dentistry.
- b* Pharmacy.
- c* Law.

IX. THE RELATION OF THE MEDICAL PROFESSION TO SOCIOLOGIC AND PHILANTHROPIC MOVEMENTS:

X. SCIENTIFIC CONSIDERATIONS APPLICABLE TO MEDICINE BUT NOT BEARING TECHNICALLY UPON IT:

The Council moved that this outline be referred to the Academy as a tentative sketch of the field of the Academy, which is to be extended by the Program Committee, and recommended its adoption by the Academy.

A motion to adopt the recommendation of the Council was made and discussed by Drs. L. Duncan Bulkley, of New York, William R. White, of Providence, Augustus P. Clarke, of Cambridge, Helen C. Putman, of Providence, and adopted.

3. The Council recommends that the Academy appoint Dr. Helen C. Putman as its delegate to the International Congress of School Hygiene in London, August 1907.

On motion Dr. Helen C. Putman was unanimously chosen as the delegate.

4. The Council suggests that the Academy adopt the following as a standing rule:

That, hereafter, delegates to foreign societies appointed under the provision of Article XI of the Constitution be sent only to societies devoted to some phase of medical sociology.

On motion, the suggestion was accepted and the rule adopted.

5. The Council recommends the adoption of the following resolution:

Resolved, That in the readjustment of the individual accounts of the Academy with the Fellows, made necessary by changing from subscription to the Bulletin to an annual fee, the treasurer be instructed to credit all who have prepared their subscriptions to the December, 1906, or any subsequent number, with the dues payable at this meeting, and to send statements of the dues to all the others.

On motion the resolution was adopted.

The Council reports for the information of the Academy that it has taken the initial steps towards increasing the usefulness of the Bulletin. As rapidly as the arrangements can be made and the treasury of the Academy will permit the outlay, a number of department editors will be appointed following the suggestion of the Committee on Program as to the character of the departments. This editorial staff will devise means of increasing the value of the Bulletin by securing material for publication apart from and in addition to the papers, etc., presented at the meetings of the Academy.

It was moved and seconded that the report of the Council be received as a whole. Dr. L. Duncan Bulkley mentioned that the Council had also changed the appointment of the Committee on Program, and that, hereafter, it will consist of the president, with the two latest ex-presidents, the senior ex-president being

the chairman. The motion to receive the report of the Council was adopted.

* The Council recommended the election of the following applicants:

Ernest B. Folsom, Portland, Me. Charles D. Lockwood, Pasadena, Cal.
Henry T. Boutwell, Manchester, N. H. T. J. Kinnear, Eveleth, Minn.
Thomas Grant Allen, Chicago.

On motion, the secretary was authorized to cast a single ballot in their favor and they were elected.

The Auditing Committee presented the following report:

BOSTON, June 2, 1906.

We have examined the accounts of the treasurer and found them correct.
(Signed)

F. THOMAS KIDDER,
WM. R. WHITE,
JAS. U. BARNHILL,

Committee.

On motion, the report of the committee was received.

Dr. L. Duncan Bulkley presented the following resolution which was referred to the Council:

Resolved, That the Committee on Program in conjunction with the secretary be directed to prepare the tentative schedule adopted and secure insertion as fast as possible in the medical journals of the country.

Dr. F. Thomas Kidder proposed the following amendment to the constitution, which lies over, under the rule.

Resolved, That Article VII, Section 2 of the constitution be amended by striking out the words: "*Provided*: That all Fellows elected previous to or during the meeting for 1898, shall not be liable to this penalty, but shall not receive the publication unless the dues are paid."

OPEN SESSION.

The program for the day was the consideration of a symposium entitled "How May the Medical and Teaching Professions Coöperate to Improve the Moral, Mental, and Physical Condition of the Young?"¹

¹ The papers and discussion comprising this symposium will appear in the October Bulletin.

The president introduced President G. Stanley Hall, of Clark University, and Dr. M. T. E. Groszmann, of Plainfield, N. J., who had been invited by the Program Committee to contribute to the symposium, and extended to them the privilege of the floor.

The following papers were read in the symposium:

(1) By Dr. S. A. Knopf, of New York: "How May the Medical and Teaching Professions Coöperate to Improve the Moral, Mental, and Physical Conditions of the Young?"

Dr. Walter Channing, of Boston, was introduced as a corresponding delegate, upon credentials from the Brookline School Committee.

(2) By Dr. Dudley A. Sargent, of Harvard University: "The Duty of the Family Physician in Regard to the Proper Mental and Physical Development of the Children under His Care from Infancy to Adolescence."

(3) By Dr. M. T. E. Groszmann, of Plainfield, N. J., of the School for Atypical and Nervous Children: "The Training of the Mentally and Morally Defective Child."

(4) By Dr. Casey A. Wood, of Chicago: "The Sanitary Regulation of the School Room with Reference to Vision."

(5) By President G. Stanley Hall, of Clark University, Worcester, Mass: "Coeducation."

At the conclusion of President Hall's paper, the Academy took recess until 2.00 P.M., when it reconvened to listen to the remaining papers.

Superintendent A. J. Jacoby was introduced as a corresponding delegate from the Milton, Mass., Public Schools.

(6) By William T. Smith, of Dartmouth College: "The Advantages or Disadvantages of Coeducation after the Age of Twelve Years."

(7) By Dr. Augustus P. Clarke, of Cambridge,

(8) By Dr. L. Duncan Bulkley, of New York, and

(9) Dr. Edward Cowles, of Harvard University, presented different phases of "The Dangerous Influences of Over-taxing the Girl's Mind, Particularly at the Age of Puberty."

Mr. Adelbert L. Safford was introduced as a corresponding delegate representing the Beverly School Committee.

The discussion of the papers was formally opened by President G. Stanley Hall, and Dr. Helen C. Putnam, of Providence, R. I., and participated in by Drs. G. V. N. Dearborn, of Boston; J. Madison Taylor, of Philadelphia; J. T. Searcy, of Tuscaloosa, Ala.; J. H. Deering, of Braintree, Mass.; Mr. A. L. Safford, of Beverly, Mass.; Drs. D. T. Nelson, of Chicago; Woods Hutchinson, of Arrowhead Springs, Cal.; A. G. Hurd, of Milbury, Mass.; H. J. Stacey, of Leavenworth, Kas.; and E. H. M. Sell, of Summit, N. J.; and in closing by Drs. Knopf, Groszmann, Wood, Smith and Clarke.

At the conclusion of the discussion, the Academy held an executive session in a parlor adjacent to the Banquet Hall.

The Council recommended the Academy to elect to fellowship:

Charles H. Hunt, Portland, Me.	A. M. Jackson, Fall River, Mass.
E. M. Fuller, Jr., Bath, Me.	Aaron H. Thomason, Boston.
Ellen Appleton Stone, Providence,	James C. Ayer, New York.
R. I.	J. G. Holmes, Fierro, New Mexico.

On motion the secretary was instructed to cast a single ballot for the Academy and the applicants were elected.

The Nominating Committee presented the following report:

For President—Dr. Casey A. Wood, of Chicago.

For Vice-presidents—Drs. Wm. L. Estes, of South Bethlehem, Pa.; James A. Spalding, of Portland, Me.; Woods Hutchinson, of Arrowhead Springs, Cal.; and Guy Hinsdale, of Hot Springs, Va.

For Secretary and Treasurer—Dr. Charles McIntire, of Easton, Pa.

For Assistant Secretary—Dr. Alex. R. Craig, of Columbia, Pa.

[Signed]

F. H. GERRISH,
HELEN C. PUTNAM,
LEARTUS CONNOR,
Committee.

On motion the secretary was instructed to cast a single ballot for the Academy and the gentlemen named were elected.

The Committee on Honorary Members reported through Dr. Edward Jackson, nominating Dr. F. Trendelenberg, of Leipzig, Germany, who was elected upon the motion that the secretary cast the ballot for the Academy.

Some of those present expressed a desire to honor such men as President Hall, whose lines of research so closely parallel the investigations of the Academy, but it was found that constitutional restrictions prevented.

Dr. Winfield S. Hall proposed the following amendments to the constitution:

Article III, Section 1. Insert the words "Associate fellows" between "*fellows and honorary members.*"

Section 3. Strike out the words "in the medical profession."

Insert new section. "There may be elected to associate Fellowship, distinguished men who have contributed to the solution of the problems before the Academy."

The proposed amendments lie over until the next meeting.

The Academy, on motion, took a recess until 7.00 P.M., when it met at the Hotel Nottingham for the social session.

During the evening, President Hawley resigned the chair to President Wood.

On motion of Drs. McIntire and McBride, the president was given permission to make his appointments at his pleasure.

The secretary reported for the Council that the resolution of Dr. Bulkley referred to it, was ordered to be reported back to the Academy with the recommendation that it be adopted. This was done upon motion. The resolution is as follows:

That the Committee on Program in connection with the Secretary be directed to prepare the tentative program adopted, and secure its insertion in the medical journals as soon as possible.

It was moved by Dr. Jackson, duly seconded and adopted, that the thanks of the Academy be extended to those who have contributed to the success of this meeting, expressly:—

To the management of the Brunswick for the place of meeting and the care during the meeting.

To the management of the Nottingham, for the efforts to give us so pleasant a social session.

To the Committee of Arrangements and its coadjutors, especially to those who have contributed to our pleasure during the social session and to the retiring president for his untiring labors; he is to be congratulated at having his efforts rewarded so magnificently.

On motion the Academy adjourned.

The following Fellows registered at the meeting:

ALABAMA.

Tuscaloosa.
J. T. Searcy.

CALIFORNIA.

Alhambra.
Boardman Reed.
Arrowhead Springs.
Woods Hutchinson.
Los Angeles.
H. Bert Ellis.
Pasadena.
James H. McBride.
San Francisco.
Philip Mills Jones.
W. F. Southard.

COLORADO.

Denver.
Edward Jackson.

DISTRICT OF COLUMBIA.

Washington.
George N. Acker.

ILLINOIS.

Chicago.
Mortimer Frank.
Winfield S. Hall.
Robert W. Hardon.
Frank S. Johnson.
Daniel T. Nelson.
Casey A. Wood.
Chicago Heights.
William M. MacChesney.

INDIANA.

Fort Wayne.
G. W. McCaskey.

IOWA.

Des Moines.
Gershom H. Hill.
Iowa City.
S. W. Littig.
Sioux City.
W. Jepson.

KANSAS.

Leavenworth.
H. J. Stacey.

KENTUCKY.

Russelville.
M. E. Alderson.

MAINE.

Bath.
William E. Rice.
Calais.
Stephen E. Webber.
Lewiston.
Alonzo Garcelon.
Portland.
F. H. Gerrish.
James A. Spalding.

MARYLAND.

Baltimore.
Julius Friedenwald.

MASSACHUSETTS.

Arlington.
Julia Tolman.
Boston.
Alice G. Bryant.
Edward Cowles.
Emma B. Culbertson.
George V. N. Dearborn.
Edwin B. Harvey.
Henry O. Marcy.
Henry O. Marcy, Jr.
Edward O. Otis.
Edward A. Pease.
Fred. M. Spalding.
Cambridge.
Augustus P. Clarke.
Genevieve Clarke.
Inez L. Clarke.
Dudley A. Sargent.
Albert H. Tuttle.
Fall River.
J. H. Jackson.
Leominster.
Griffith E. Abbot.
Lowell.
William H. Lathrop.
Milbury.
Albert G. Hurd.

Monson.

G. E. Fuller.

Roxbury.

A. H. Thomason.

Somerville.

Charles K. Cutter.

South Boston.

John G. Morris.

Taunton.

Silas D. Presbrey.

Worcester.

Ernest V. Scribner.

MICHIGAN.

Ann Arbor.

William J. Herdman.

Detroit.

Leartus Connor.

Charles W. Hitchcock.

Burt R. Shurly.

NEW HAMPSHIRE.

Hanover.

John M. Gile.

William T. Smith.

NEW JERSEY.

Atlantic City.

William E. Darnall.

J. Addison Joy.

Summit.

E. H. M. Sell.

NEW YORK.

Brooklyn.

Francis H. Stuart.

Buffalo.

A. L. Benedict.

Joseph W. Grosvenor.

Clifton Springs.

F. W. Spaulding.

New York.

James C. Ayer.

Louis F. Bishop.

L. Duncan Bulkley.

S. A. Knopf.

Phelps.

William A. Howe.

OHIO.

Cincinnati.

Philip Zenner.

Cleveland.

A. R. Baker.

Columbus.

James U. Barnhill.

PENNSYLVANIA.

Columbia.

Alex R. Craig.

Easton.

Charles McIntire.

Henry D. Michler.

Greensburg.

W. J. K. Kline.

Norristown.

Joseph K. Weaver.

Philadelphia.

Henry Beates, Jr.

Gwilym G. Davis

John B. Roberts.

J. Madison Taylor.

Pittsburg.

Thomas D. Davis.

Edward B. Heckel.

South Bethlehem.

William L. Estes.

Waynesboro.

P. D. Hoover.

RHODE ISLAND.

Providence.

Helen C Putnam.

William R. White.

VERMONT.

Barre.

M. L. Chandler.

Brattleboro.

A. I. Miller.

Burlington.

Donly C. Hawley.

John M. Wheeler.

Woodstock.

F. Thomas Kidder.

CANADA.

Toronto.

R. A. Reeve.

DEPARTMENT OF MEDICINE IN THE LIFE OF THE PEOPLE.

The scope of this department is nearly illimitable as it necessitates the consideration of the two sure things of human existence: Death and taxes—for the expense attending the care of the sick is a tax. The department must consider the habits and customs, beliefs and superstitions of all ages and climes, and the attitudes, relations or influences of their medical advisers on the same—reciprocally, of course, of such views on the physicians themselves. The materials for these papers may be drawn from history or legend, science and folk-lore, philosophy and religions. Were the subject to be presented in a single article set forth in orderly array, even the most venturesome would shrink from the task. To our comfort, that is not the plan. An exploration is to be made in one direction, an excursion in another, at one time an article weighty from the results of careful delving in the dust of the ages, at another, a lighter paper, but no less valuable, bringing into prominence some one fact that has come to the author's notice.

While this implies no orderly array of topics, and there need be none in a periodical publication, efforts will be made from time to time to emphasize certain localities in the vast continent assigned to the department. Thus, it occurs to us, that our space in a single number might be employed profitably in publishing carefully prepared papers on either of the following topics: Hippocrates on Airs, Waters and Places; Avicenna; The Medical School of Salerno; or the Knights Hospitalers of St. John.

Then there is room for the philosophic presentation of the Institutes of Medicine, just as Justinian wrote those of the Law. All the classical medical writers have done this from Hippocrates to Boerhave, and have been followed by the cyclopedias, etc., of the present. But none of them have done for medicine what Blackstone did for the law, when he analyzed the principles which were to be found underlying all the precedents of decisions in the English courts and thus gave to law its only claim to be

considered a science. There is a field for effort here. George B. Wood did grand work toward it in his practice of medicine, but much still remains. If we follow the evolution of medicine, gradually and step by step, up to the medical science of to-day; how observation and experience evolved theory after theory; how knowledge brought power—whether to Nestor among the Greeks, or to Baalam among the Moabites; or magicians, sooth-sayers, astrologers to men like Paracelsus or the Alchemists; or the Shamans among our Indians, witch-doctors in Africa or Monks in Europe (sadly abused, yoked so often with lust, greed and priest-craft—curious how close the alliance)—how theory after theory expanded like soap-bubbles to burst and leave only a tiny drop of residual truth behind, while age after age has gone on blowing them over again, we will be attempting a task well worth our highest endeavor.

Who is sufficient for all this? Let us treat the question as a conundrum and “give it up.” No one may be sufficient for all; many are efficient for a part. The duty of the editor is rather to point out the glorious prospect; it remains for the individual, and each individual to contribute a portion. Papers treating any part of the field are invited; correspondence is solicited, suggestion welcomed; it remains for the enthusiastic cooperation of those who are interested to give value to the department.

J. CHESTON MORRIS.

OBSERVATIONS IN PASSING.

IN PROSPECT.

The two items of legislation of greatest importance at the recent meeting at Boston related to the financial policy of the Academy and to the Bulletin. It changed its hitherto cumbersome methods and now is to make a single charge and furnish the publications to every member; it determined that the Bulletin should cover the field of medical sociology more thoroughly than can be done by a few papers at each annual meeting.

A staff of editors is forming, each one having some special department under his care. This is not an unusual organization for a scientific journal. In this, it is unlike most of them, that the department editors will seek for original material as well as attempt to review the progress of events in his department. The scheme was broadly outlined in a prospectus sent to the Fellows recently. Beyond that statement, little can be said at the present until the organization is completed and the staff defines a policy. But much may be said of other improvements that can be apart from the department organization and be permitted to develop as the result of experience. Three separate lines of efforts will be outlined at this time.

(1) The discussion of the papers and the reports presented at the meetings can be continued. A part of each issue could be used with profit to communications relevant to the papers or reports of the previous number. The report appearing in the present number, for example, affords many statements where there may be an honest difference of opinion. What could be fairer than to have the other side presented; what could be more helpful than to have additional evidence of the truth of the opinions advanced? No previous elaboration of plans is necessary to add a very valuable feature to the Bulletin; it requires but an interest on the part of its readers, and a willingness to cooperate—not primarily for the advancement of the Bulletin, but for the presentation of the truth. A promise cannot be made that everything presented will be published; there must be a limit to the size of the Bulletin, and there must be some effort to maintain a

proper division of the space, but every effort will be made to present the views submitted without undue condensation.

(2) Book reviews and book notices should receive more careful attention; there is an extended field here awaiting cultivation. Most journals limit their book notices to those presented by the publishers for review. The management can see no reason for so doing. All books submitted by the publishers will be noticed: the title of the book, number of pages, author, publisher and price. This advertisement of the book surely pays for the volume itself. The reviews are for the reader and should be of books selected by the editor and his coadjutors, not the book-publishers. We invite our readers to send us extended and careful reviews and criticism of books they are reading; as space will permit, they will be published, signed by the reviewer; no review of this kind will be accepted to be published unsigned. There is no reason why two reviews of the same work should not appear, taking opposite views. Of course in the publishing of these reviews, works relating to sociologic topics will receive the first attention. Then, apart from the critical review, other books will receive a descriptive notice, an attempt to describe the contents of the book apart from expressing an opinion upon the value of the book itself.

(3) While the abstracting of the current literature will fall ultimately to the supervision of the editors of the various departments, there is no need for waiting until these can take up the duty in order to inaugurate the publishing of a concise synopsis of the literature of medical sociology. To this end we invite the cooperation of the Fellows of the Academy. Of course the articles to be abstracted must be confined to those treating of questions germane to the policy of the Bulletin. They are to be found scattered through journals of every type. If the Fellows will volunteer to read certain definitely mentioned periodicals (including the daily press), ordinarily the journals they are in the habit of reading, and send us as concise abstracts as possible of all articles relating to medico-social questions, in a very little time this department would become a veritable Jahresbuch. A careful card index will be kept of the journal to be abstracted and the abstractor so that no work will be duplicated.

For the most part, the only additional work this would entail upon any reader would be the preparation of the abstract.

Every year one or more resignations are presented to the Academy. The reason usually assigned is an inability to contribute to the prosperity of the Academy because they are unable to attend the meetings. Here are three separate lines of effort open to each Fellow whereby he can assist, demonstrating a hearty interest, and affording a greater opportunity for usefulness than the mere attending the annual meetings would secure. And it can be done without ever having the opportunity to enjoy the fellowship which distinguishes these annual sessions. Will *you* not assist in any one or in all of the methods suggested?

* * *

There is another way to assist the Academy. Its Bulletin will prove interesting to many who are not in a position to unite with it. The larger the circulation, the greater chance of receiving papers of value, and the ability to issue a larger and handsomer journal. Let each reader constitute himself a subscription agent and thus increase the circulation of the Bulletin, and the return in a better Bulletin will be prompt. The blank accompanying this number may aid in this.

A CAMPAIGN OF EDUCATION.

A fund has been placed at the disposal of the Philadelphia School for Nurses for the printing and disseminating, on a large scale, a series of pamphlets on such medical subjects as the general public ought to be informed.

Some of the suggested subjects are:

"Avoiding and Preventing Contagion."

"Home Sanitation, House Drainage, Protecting the Fireside."

"Milk—Its Purity, Its Uses, Its Dangers."

"Motherhood—Conception, Pregnancy, Safe-guarding the Mother and Child."

"Care of the Baby."

"Public School Teachers and Public Health." The assistance the teacher may render the physician and the regularly constituted health authorities.

"The Work of Local Boards of Health and How the People Can Aid in Making Their Organization and Service More Effective."

"The Church and the Public Health."

"Labor Organizations and the Public Health."

Should these pamphlets be prepared in the proper spirit, accurate as to the statement of fact, and free from fanciful hypothesis, they can not fail of accomplishing much good if they are distributed judiciously.

We are led to believe that the officers of the school are seeking for the proper persons to prepare these and similar papers. The Bulletin will be pleased to put any of its readers who may be willing to contribute to the series in communication with the proper officer.

THE BOSTON MEETING.

The Apostle Paul in one of his epistles says: "For though I should glory somewhat abundantly * * * I shall not be put to shame;" he felt assured that he had something substantial to exult over. A somewhat similar spirit could be displayed here; the meeting abounded in incidents worthy of gratulation, but a mere recounting of past deeds, a fighting of battles the second time will accomplish nothing. If the Academy be striving for an ideal, and if it be not, there is no hope for the future, and little joy in the events of the past. If the Academy be striving for an ideal—none the less real because vaguely defined—each meeting should be an incentive for better things to follow. Each meeting should be studied carefully to see its weak points, that these may be strengthened. Where are the weak points? Possibly no two of those in attendance will agree; but, and here is the pith of it all, whenever any of the Fellows of the Academy notes a condition that seems to be weak, he should at once begin to discuss that condition for its bettering. In the multitude of counsellors, there is safety.

Without boasting, it may be noted that the Boston meeting had the largest registration in the history of the Academy and, what is more gratifying, there were very few who came merely to register. There was a full supply of excellent papers, with probably not enough time for discussion. Dr. Casey A. Wood's election to the presidency promises a year of active preparation for 1907, while the retaining of Drs. Hall and Hawley on the Committee on Papers is an assurance of an excellent program.

The second annual meeting of the International Medical Association of Mexico will be held in the City of Mexico from Wednesday to Saturday, November 14 to 17, 1906. A very cordial invitation has been received inviting the members of the American Academy of Medicine to attend the meeting. The secretary is Dr. R. W. Jamieson, Apartado 38, Torreon, Coah., Mexico.

* * *

The seventh annual meeting of the American Roentgen Ray Society will be held at the Cataract and International Hotels, Niagara Falls, on Wednesday to Friday, August 29 to 31, 1906.

An interesting program is promised and there will be an exhibit of prints and negatives. The railroads have made a concession of a fare and a third on the certificate plan. The president of the society is Dr. Henry Hulst, of Grand Rapids, Mich., and the secretary, Dr. George C. Johnston, 611 Fulton Building, Pittsburg, Pa.

WORTH REPEATING.

We cannot expect to turn out at graduation perfect physicians, any more than we can turn out from an engineering school perfect engineers. In all cases, much in the way of necessary knowledge must be left for them to gain in the busy days of active practice. But as to one thing we must take great care. We must not hold the student beyond the years when he should begin to work at his profession for himself, nor should we directly or indirectly cultivate in him the thought that he is always to be dependent upon superior guidance. A learner one must always be, but we should early be trained to find our learning for ourselves. Is not the ideal professional man he who has come by training into full possession of the powers that are in him, and has acquired in addition the necessary foundations of technical professional knowledge? If a man has thus been trained to the full possession of his powers he cannot but grasp more speedily and more intelligently the principles of professional knowledge, and this the more surely if there shall have been included in the elements of his training such subjects as are strictly introductory to the profession he proposes to enter. Now, the one institution that

we have whose express object is this putting a man in possession of his powers is the college, and, notwithstanding individual exceptions, in the main it must be admitted that it succeeds in accomplishing its object. This is the ground, I think, on which those who advocate a bachelor's degree as an advisable, if not a necessary, antecedent of a medical course base their opinion. It is not because of that indescribable thing called culture, but because the college graduate is likely to have a firmer grip upon himself than has his fellow. If it be remembered, too, that in college courses, at least in the larger institutions, as now constituted, there is ample provision made for very high-grade instruction in chemical, physical and biological science, it becomes clear that probably a considerable percentage of their graduates are in every way, both general and special, better prepared for starting on a course of medical studies than their fellows who are non-graduates. Every step should be taken in the direction of encouraging the entrance of men into the medical school previously and fully prepared by general and specific college training. The proper method of approaching the solution of this difficult problem appears to me to determine when the preparatory work ends and the medical course proper begins. The line is to be drawn and the entrance requirements fixed accordingly. The colleges will be glad and eager to take up their share in the work, for upon that score there need be no fear.—*Report of Provost Harrison, of Univ. of Pa., 1906.*

THE TWO CLEAR AIMS IN EDUCATION.

There are two dominant and legitimate aims in what we comprehensively call "education." One aim is to train for a practical purpose—to train a boy to be a lawyer, a physician, an engineer, a printer, a brick-mason, a carpenter, a book-keeper, a what not. We have educational machinery to do only a part of these tasks. A boy who wishes to be prepared for a professional career can find an accessible school, if he be prepared to enter it and if he have, or can earn, the money to pay his way. We have, perhaps, professional schools enough, if they were all good enough. But we lack trade schools. We lack them the more because there is need for more of them than of professional schools and because

they must be more easily accessible. There ought to be a trades school within reach of every considerable unit of population. The movement to make such schools a part of the public school system is growing.

Now the other aim is the one we are likely to lose sight of in the increasing demand for purely utilitarian teaching, and this aim was admirably expressed some time ago by President Hadley of Yale University.

"The old college with all its faults, was a place where private aims were subordinated to public ones in a way that would have been impossible in any purely technical or professional school; a place where each man felt an intense interest in the work of his fellows; a place which had the spirit of true democracy and formed the truest kind of preparation for American citizenship."

This was and is the most precious result of college life proper. It goes along with a liberal culture, but the spirit that it breathes is of greater importance than his individual culture. This spirit is the justification of the old "culture studies" for a select body of youth, and it always will be. It is a short-sighted crime to attempt to change or in any way to discourage those inspiring institutions which fill young men with this spirit. They have given inspiration to many of our best public men, our best judges, our cleanest and most public-spirited men of affairs, our noblest preachers, our best teachers, our best writers. Training for the trades and for the professions is needed—more training and better training and training for more men. We shall not have an educational system with which we can be content till a good school for every trade and for every profession is within easy reach of all capable youth. But our zeal for this kind of training goes astray when it seeks to modify or discourage that high culture of the spirit which makes a man put the public good before his own gain and which fires him with an ambition unselfishly to serve our democracy.—*Editorial Article in "The World's Work" for July.*

ORGANIZATION AND THE REGULATION OF FEES.

Here and there we find some writer who contends that physicians must organize so that the inadequate fees paid by life insurance companies may be adjusted to the proper height. Again, in certain communities, where through the anxiety of some weak

practitioners the fees are held very low, physicians have openly declared that a thorough organization would eradicate the evil.

The American Medical Association and the State Societies have already to bear the stigma of medical trust or medical union on account of the splendid fight against quacks and nostrums, but is it not time to remind the medical profession that no organization for the purpose of raising fees is ethical? What difference could be found between medical and trade unions, if as an organization we demand more money and less work?

It does not suffice to call attention to the thousands of physicians who are underpaid, or even starving. No excuse can be offered for the practice of forcing a certain price on our patients by organization. A physician has only one way of raising his price and that is demonstrating his absolute worth. The methods of the trade unions must not be tolerated among the learned professions.—*Editorial Article in "St Louis Courier of Medicine," July, 1906.*

* * *

Some of the readers of the *Post-Graduate* who are interested in the matter of college education in this country, may recall a letter by the president of the Post-Graduate Medical School, Dr. Roosa, copied from the *New York Tribune*, in which he claimed that in general the college education of this country was becoming so confused and so different in its character in different places that it was really a matter for serious consideration. The main point of that letter was that the German systems should be adopted in America, that is to say, there should be an excellent school of preparatory preparation, then a college corresponding to the German gymnasium and after that the university. There should be no elective studies in this gymnasium, not until the university is reached ought there to be anything of that kind. It was claimed by Dr. Roosa that the imitation of the English in creating universities, such as Harvard and Yale, in which the students were too old for a college and too young for a university, was doing a great deal of harm to the medical profession, by preventing those who wish to study medicine from taking the long course necessary before coming into the medical school. Although some of the presidents

of the smaller colleges also agitated the subject about this time, very little effect was produced. It was very evident that the presidents of such colleges as Yale and Harvard did not wish to give up their devotion to the four classes, Freshmen, Sophomores, Juniors, and Seniors, whose requirements they were constantly increasing. They seem to have little sympathy for the professional schools, which really constitute a university. It may be surmised, at least, that they thought the proposal to adopt the German system, which is in effect to go back to the small colleges with their simple curriculum of fifty years ago, would be archaic. At any rate, they would have none of it.

But this is a question that will not down, and a great impetus has been given to the views of the letter to which we have alluded, and of some of the presidents of the smaller medical colleges, by an address by Charles Francis Adams, at Columbia University. Mr. Adams is a member of the Harvard board of overseers and he proposes to tear down completely the large university, as it is at present conceived, and to substitute for it a number of small colleges with a master with full authority at the head of each. This is simply the idea of those who some years ago protested against the system at Harvard, with its severe entrance examination, and its elective studies which made it neither fish, flesh, nor fowl, nor good red herring, neither a college nor a university. All kinds of attempts are being made in various parts of the country to get over a difficulty which in the opinion of many would be no difficulty at all. Columbia proposes to cut down, if we understand it correctly, the academic course for medical students to two years. Princeton, which has never sinned so much in the way of departing from the small college system, as have the renowned institutions at Cambridge and New Haven, gives the young men tutors to correspond somewhat to the tutors at Cambridge and Oxford. It is indeed very strange that those who believe as do Mr. Adams and the writer whom we have quoted, do not get together and present the real remedy. Our preparatory schools, such as those at Exeter in New Hampshire and Andover in Massachusetts, and some in New Jersey, are more than sufficient to prepare boys for entrance to the simple college. If boys could enter college at fifteen they could begin the study of medicine at nineteen. It is

the difficulty of securing a collegiate education for the doctor, so as to prevent him from being pushed away from the academic green or campus into the prosaic, non-sentimental high school, that induces Dr. Roosa to agitate the subject. The *Post-Graduate* hopes to see educational leaders of this country fully appreciate the fact that the German system is thoroughly well adapted for our needs and that the English is utterly unfitted for the professional men of our great nation. Oxford and Cambridge are very well for educating Bishops and Lord Chancellors, but they do not accomplish much in bringing educated physicians to the fore. If fathers desire their sons to have a collegiate education before studying medicine or law, they must provide simple colleges, not hybrid universities.—*Editorial Article in "Post-Graduate," July, 1906.*

AMONG OUR EXCHANGES.

MEDICAL CHARLATANISM IN GERMANY. *British Med. Jour.* June 9, 16, 23, 30, 1906.

Dr. Otto Neustätter, of Munich, writes an intensely interesting article showing that the practice of medicine is practically open to all in Germany.

The driver, the professor of gymnastics, the teacher of swimming, even the dancing master and the vendor of old clothes must possess certain qualifications without which he may be forbidden to follow his trade. But the mortal who makes it his business to treat sick people, and in whose hands life and health are laid, may be little better than a scamp. Of him is demanded no general education, nor even ability to read or write, and he may understand as little of the medical art as a new-born babe. The person who considers himself fit to doctor his fellow mortals is fit to do it and justified in doing it, and that is the sum of the matter.

This condition is explained by the statement that the legal protection is extended only to the title of "Arzt."

In order to practise it is unnecessary either to possess a certificate of any kind, or to have any moral or technical qualification. In a word, the calling of a doctor is free to any one to profess, as long as the title of "Arzt" is not used.

The author then details the history of how this was brought about. In order to free themselves from some annoying limitations, the physicians secured the repeal of a law regulating the practice of medicine. He then narrates the effect of this repeal in the

increase of quackery, and the after efforts of the medical profession to secure new legislation.

Some examples of the power of the more successful charlatans to amass fortunes are worth quoting.

The Shephard Ast, of Radebruch, celebrated for his diagnoses made from hair cut from the nape of the neck, cured all and everything with a tincture composed of rhubarb, lemon and fennel, and with his net proceeds bought a country seat worth £11,500.

In the course of fifteen years the tailor's apprentice Jost, afterwards found guilty of fraud and unnatural prostitution, became a millionaire by means of his magnetic fraud. Goessel, who diagnosed from trouser buttons, pieces of worn shirt, etc., earned enormous sums with magnetized parsley. Glüncke, a lawyer discharged for libelous incidents, pretended to dissolve the foreign elements stored up in the blood by his non-poisonous vegetable potions, and to be able to expel such diseases as cancer, syphilis, tuberculosis, and abscesses by means of the "gases which were generated." This humbug at last pocketed no less than £6,000 a year for his absolutely worthless concoctions, made up of almost nothing but oakbark.

The article attempts to estimate the amount of money expended in Germany upon these impostors, and then reports the results of several investigations as to the harm actually done to many of their credulous victims. The efforts to bring them to justice and the frequent leniency of the courts are also detailed.

A few instances of the leniency of the judgments will be given. In the case of a little humpback, whom a female quack promised to cure by means of sugar balls, no conviction was obtained; the jury assumed it to be possible that the woman had believed in the efficiency of the treatment! In the case of a patent-medicine swindle, a Dresden jury showed clemency "because we are living in the times of nostrums."

The methods employed by the German "irregular" is very familiar to us, specious advertising, treatment by mail and all the rest. The author thinks that "nature cure" is enjoying at present the most wide-spread popularity. He gives the following figures:

Out of 4,104 quacks in 1902, 3,761 were nature cures and 770 cured by means of water, * * * * 145 worked by means of magnetism, 79 by electricity, 77 by plant cures and drugs, 74 by afflation, 37 by means of herb cures * * * 23 by sun baths, 14 by hypnotism, * * * 6 by Christian Science, 3 by laying-on of hands, 2 drove devils out, 1 spat on his patients * * * . It may be interesting to mention, by the way, that out of these 4,104 quacks * * * more than 11 per cent. had previously been convicted. * * * * Out of 1,440 quacks about whom we were informed,

1,135 (79 per cent.) have enjoyed only the lowest type of schooling, the Volksschulen.

The article concludes with an enumeration of the efforts made to prevent these frauds and what has already been accomplished.

EVIL EFFECTS OF SENDING CHILDREN TO SCHOOL AT TOO EARLY AN AGE. Dr. G. H. Tichenor, Jr., of New Orleans, La., in the *Southern Practitioner* for June.

Children from five years of age up, laden with books, may be seen trudging to school, while boys of 17 are to be found loafing on the street corners. Investigation showed that many of these had crammed while younger, and acquired a dislike to study.

The author thinks that this class of boys is increasing and that it is due to overtaxing the brain too young. Ten per cent. of the 16,000 children in Berlin this year are found insufficiently developed in mind and body and were excluded from the school for a time. Dr. Francis Warner, of London, states that among 50,000 school children seen in 1892-94, 4,868 between the ages of three and fourteen showed abnormal nerve lesions, 1,372 of these between the ages of nine and ten.

There is no restriction in America, and the frequency of acquired nervous disease among school children is apparent to the observing physician.

The school life should be based upon sound physiologic laws; especially is this imperative for the younger children.

THE MERGER PROPOSITION.

Dr. Webster debates the question suggested by some California physicians of uniting several medical schools in California, differing in their therapeutic hypothesis into one institution, arguing in the negative, as one would expect. In the course of his article Dr. Webster says:

The legislative committee of the [Eclectic] State Society made a fatal mistake without consulting with anybody except their own dear selves. They listened to the song of the siren—the siren of sugared flattery—and joined issues with the great majority for a composite board with old school rulings, and have thus surrendered the rights of the entire eclectic fraternity in the state.

Of course one on the outside cannot understand, at least it is said that we cannot, but the above is a fair sample of statement

usually made by the less numerous "schools of medicine." Seldom do they discuss the question of a state examination where there is a single board, without an inuendo against the moral tone of the majority of the board. When one has had an opportunity to read the papers marked by separate boards, and note the marked difference in the severity of the markings, another reason for the objection to mixed boards can be formulated.—By Herbert T. Webster, Oakland, Cal., in "*Eclectic Med. Jour.*," July, 1906.

HOW THE MEDICAL PROFESSION CAN AID IN THE PERFECTING OF HOSPITAL MANAGEMENT.—By DR. MOSES COLLINS, Superintendent National Jewish Hospital for Consumptives, Denver, in *Colorado Medicine*, July, 1906.

The author holds that medical men should be on the governing boards of hospitals, and dominate in its management. To the end that they may be fitted more perfectly for this, he suggests that instruction in hospital economics be included in the curriculum of the medical school, and also in the nurses' training school.

In the resulting discussion, some very frank statements were made by men who were conducting small private hospitals, showing the often too evident jealousy that exists in the medical profession.

LITERATURE NOTES.

REVIEWS.

THE VALUE OF HUMANISTIC, PARTICULARLY CLASSICAL, STUDIES AS A PREPARATION FOR THE STUDY OF MEDICINE AND ENGINEERING, FROM THE POINT OF VIEW OF THE PROFESSIONS. A Symposium. From the Proceedings of the Classical Conference held at Ann Arbor, Michigan, March 29, 1906. Pamphlet, 26 pp. Reprint from the *School Review*, June, 1906.

A note on the first page says:

Through the kind assistance of the Board of Regents of the University of Michigan and the courtesy of the publishers of the *School Review* it has been possible to secure a number of reprints of this symposium for distribution among teachers and students. Those desiring a copy may address (enclosing a two-cent stamp for postage) Mr. Louis P. Jocelyn, Secretary, Michigan Schoolmasters' Club, South Division Street, Ann Arbor, Michigan.

Would the list were extended to those members of boards of medical examiners, professors of medical colleges, and others who are striving to narrow the medical education to the "practical" studies.

This pamphlet contains a paper on "The Value of Greek and Latin to the Medical Student," by Dean Vaughan, of the University of Michigan. We quote two or three sentences:

There has been found nowhere a better training for the thinking apparatus of the young than the study of Latin and Greek.

Carelessness and superficiality are incompatible with any thorough study of Greek and Latin.

This habit of close observation, of attention to detail, of looking for fine distinctions and shades of difference, and the alertness of mind possessed by an individual of this habit, will be of inestimable service to him, should he choose medicine for his profession, both in his experimental work in the laboratory and at the bedside of his patient.

From these extracts, one can infer that Dr. Vaughan favors the study of both Greek and Latin by the prospective medical student, an opinion which is concurred in by Prof. De Nancrede, who discusses the paper.

The second paper is by Dr. William B. Hinsdale, the Dean of the Homeopathic Medical College of the University, on "The Value of Humanistic Studies as a Preparation for the Study of Medicine." The argument favors their employment. Again we quote:

The student who has educational qualifications or accomplishments, aside from those which have a necessary bearing upon his chosen profession, is the best prepared, not only for life, but, to use a biological term, for his specialization. He should be so prepared as not to become an intellectual malformation, but a well-balanced man.

At the present time, as the affairs of the world are going, the ordinary physician, like the average lawyer, teacher, journalist, and clergyman, does not care for education as an accomplishment. He recoils from severe training and hard reading. His ideal is the ordinary routine business success. This state of affairs must be tolerated so long as the student considers life a failure if he cannot graduate at an early age regardless of preparation, or while the leading question is: "What are the minimum requirements of the law and the curriculum?"

The physician should have special, exact, and ample knowledge of the many scientific branches that constitute what is generally summed up in the term "medicine." These branches he should comprehend in their interdependences and true and broad relations pursuing them with a sanctified devotion. There is no branch of learning which may not materially contribute to such a grasp of his subject.

The educated physician is larger than his profession and wider than his allotted space in the community.

The remaining articles in this most interesting pamphlet are by professors of engineering, and are in the same tenor. The whole series furnish excellent testimony in favor of the contention of a foundation education for mental discipline as essential for the true pursuit of professional studies. CHARLES McINTIRE.

The Annals of the American Academy of Political and Social Science for May contains a symposium on the "Improvement of Labor Conditions in the United States." We purpose a running comment upon some of the papers. Part I is devoted to "The Length of the Working Trade Life;" and the first paper by Frederick L. Hoffman, the statistician of the Prudential Insurance Company of America, is entitled "Physical and Medical Aspects of Labor and Industry." From this we glean:

As it has been well said by Marshall, in his "Principles of Economics," health and strength, physical mental and moral, are the basis of industrial efficiency, on which depends the production of material well-being. The same writer points out also that "In estimating muscular strength, or, indeed, any other kind of strength, for industrial purposes we must take into account the number of hours in the day, the number of days in the year, and the number of years in a lifetime, during which it can be asserted." Upon this theory the problems of health and life have a sound economic basis, and in proportion as life is long or short, healthy or impaired by disease, the industrial efficiency of the individual must vary within limits which are subject to at least approximately accurate calculation.

This paragraph illustrates one phase of the intimate relation of medicine and social science, and emphasizes the necessity of the careful study of social problems by the physician. As much so as the general medical problems (largely hygienic) are studied by the economist.

Instead of making the usual estimate of the value of a working-man's life on the basis of his future earnings after deducting the cost of future maintenance, which is the value of the man to himself or his survivors, he seeks to establish the economic value of man to society, and then discusses variations in industrial efficiency, and economic losses from various causes, along with methods for preventing deterioration, and bettering adverse conditions. Among his recommendation for scientific inquiry and report, the first would furnish abundant material for research to a committee working as does the present committee investigating the teaching of hygiene in the public schools.

A scientific inquiry by a mixed commission of medical and other qualified experts, under federal or state authority into the trade life and health of persons employed in the principal industries, for the purpose of determining with accuracy the existing conditions more or less detrimental to health, longevity and industrial efficiency.

The problem would be brought more nearly within the power of a committee without government aid, if it would investigate a single industry. The necessity for investigation of this kind is elaborated and urged by another paper in the same division by Robert Hunter, Esq., of New York. And while indeed such investigations are now making, as in the child-labor researches the subject is so complex and so vast withal, there is abundant room for many explorations still.

Part II relates to the settlement of industrial conflicts, Part III to the industrial conditions of the Negro in the north and Part IV to the condition of working women in the United States. Edward A. Filene, of Boston, in the first paper in this division, demands that "Education in a democracy must be vocational."

With the alarming facts of the women workers and child labor before us, it is too late to grant any longer the theoretical claims of classical education-alists that the whole end of education is culture. Or, at least, we should reply, that if they be right, then they must make vocational education cultural and we would enforce our reply with the stunted figures, the starved bodies and souls of the victims of our present educational system.

This is an excellent piece of declamation and might win the plaudits of the "aginers" but it is not constructive idealism and is, therefore, of doubtful utility—whether the author or the pedagogic expert is more theoretic is well worth the questioning, as well as the other statement concerning the cultural value of much of our modern school cramming, the results, often, of rhetorical displays similar to the paragraph quoted.

Part V is on Immigration and contains a single paper on "The Americanization of the Immigrant," by Grover G. Huebner, of Madison, Wisconsin. Apart from the paper, this subject suggests another field of inquiry, a working-out of the anthropologic and physical problems suggested by the changed environment of the immigrant and the influence of heredity in his descendants springing from nationalities heretofore distinct and widely separated. What is the composite and why? This paper treats of some of these questions not from the medical side.

"Americanization" [he defines] is assimilation in the United States. It is that process by which immigrants are transformed into Americans. It is not the mere adoption of American citizenship, but the active raising of the immigrant to the American economic, social and moral standard of life. Then has an immigrant been Americanized only when his mind and will have been united with the mind and will of the American so that the two act and think together. The American of to-day is, therefore, not the American of yesterday. He is the result of the assimilation of all the different nationalities of the United States, which have been united so as to think and act together.

It is not amalgamation, although that is one of the processes but a late one. The forces at work are the school, trade unionism, physical environment and the presence of American life, the church, politics, and certain miscellaneous forces as the press, libraries, and the social features of benevolent institutions.

The author is optimistic of the power of Americanization. The entire series of articles are worthy of careful consideration. Only the more salient points of those having remotely a medical factor have been noticed here.

CHARLES MCINTIRE.

NOTICES.

SURGICAL SUGGESTIONS. Practical Brevities in Surgical Diagnosis and Treatment. By WALTER M. BRICKNER, M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, New York; Editor, *American Journal of Surgery*, and ELI MOSHCOWITZ, M.D., Assistant Physician, Mount Sinai Hospital Dispensary, New York; Editorial Associate, *American Journal of Surgery*. Duodecimo; 60 pages. New York: Surgery Publishing Co. 1906. Cloth, 50 cents.

"The surgical suggestions published during the past few months in the successive issues of the *American Journal of Surgery*, have been extensively quoted in medical journals throughout the United States and Canada. This has suggested to us that their arrangement in logical order and in a concise form, might prove of value.

"These practical brevities make no pretension to completeness. They are merely observations taken here and there from our surgical experiences."

This extract from the preface gives an insight to the book, which contains a number of brief and pithy paragraphs, each one a suggestion regarding some surgical condition, or for treatment. The book is readable and helpful.

A COMPEND OF OPERATIVE GYNECOLOGY. Based on Lectures in the Course of Operative Gynecology on the Cadaver at the New York Post-Graduate Medical School and Hospital delivered by WILLIAM SEAMAN BAINBRIDGE, M.D., Adjunct Professor of Operative Gynecology on the Cadaver, New York Post-Graduate Medical School and Hospital; Consulting Gynecologist, St. Mary's Hospital, Jamaica, L. I.; Consulting Gynecologist to St. Andrew's Convalescent Hospital, New York, etc. Compiled, with Additional Notes, in Collaboration with HAROLD D. MEEKER, M.D. Instructor in Operative Gynecology on the Cadaver, New York Post-Graduate Medical School and Hospital; Assistant, Department of Gynecology, Vanderbilt Clinic, College of Physicians and Surgeons, New York. 1906. The Grafton Press, publishers. New York City. pp. 76. Price, \$1.00 net. Postage, 5 cents.

The title-page of this little book sufficiently describes its purpose and scope to furnish our readers a knowledge of what it is. Intended primarily for students, it will prove of interest and value to the practising gynecologist. The descriptions of the various operations are concise but full enough to refresh the memory.

TWENTIETH ANNUAL REPORT STATE BOARD OF HEALTH AND VITAL STATISTICS OF THE COMMONWEALTH OF PENNSYLVANIA. Transmitted to the Governor, December 1, 1904, Harrisburg, Pa.: Harrisburg Publishing Company, State Printer, 1906. pp. xiii+537.

There is a melancholy interest in this volume; a paster informs us that it is sent with the compliments of the secretary of the former State Board of Health, and requests the acknowledgments to be sent to the Department of Health. The twenty years of service of the State Board of Health of Pennsylvania, with its niggardly annual appropriation, were of incalculable benefit to the state. It seems a pity when some influence caused the legislature to make liberal appropriations and give increased power to the health authorities, it did not see fit to continue the organization that served the state so faithfully under so many discouragements.

The present volume records the work of the board itself and of the various county inspectors and other officials. It evidences a commendable activity on the part of all, especially so when the entire annual expenditure were but \$4,500.

TRANSACTIONS OF THE AMERICAN ROENTGEN RAY SOCIETY, Sixth Annual Meeting, Johns Hopkins Hospital, Baltimore, Maryland, September 28, 29, 30, 1905.

This volume of 224 pages gives the papers and proceedings of the last meeting of this association. The fact of the organization of a society devoted to a branch of medicine relatively so limited, and so recent, is an evidence of the rapid strides of progress in medical science. The papers presented at the meeting and resultant discussion are in harmony with professional traditions, and scientific ideals.

It is an evidence of the present development of the profession of medicine, and a straw showing the wind's direction which should be kept in mind by those who are framing regulations for the entering of intending physicians into the profession. Medicine both as an art and a science is living and therefore growing. No one can compass the whole field with such a degree of thoroughness as to be of use—a selection must be made. No one selection can be judged best with absolute certainty, therefore the educational schemes should possess considerable elasticity, and be framed to demand the underlying principles rather than definite amounts of particular studies.

FACTS AND FALLACIES CONCERNING INTERSTATE RECIPROCITY IN MEDICAL LICENSES. A paper read, by invitation, before the Illinois State Medical Society at Springfield, May 17, 1906, by James A. Egan, M.D., Secretary Illinois State Board of Health.

This paper is written by one thoroughly acquainted with the principles underlying the medical practice acts of the various states, and of the difficulties in the way of securing reciprocity. The author is careful to point out the erroneous views expressed by so many when discussing this subject. It would be well for any one desirous of investigating the possibility of reciprocity, to secure a copy of this pamphlet and read it carefully before formulating any method of procedure.

THE QUEST OF THE GERM WITH OBSERVATIONS THEREANENT. BY EUGENE H. WOOD A.M., M.D. Paper, pp. 229. Price, 75 cents, post-paid. Milwaukee, Wis.: Published for the author, by Fowell Bros

One should always read the preface of a book for therein the author introduces himself to his readers. Following this rule, we read in the first paragraph:

This is no slouch of a book. It is worth its price to any man or woman for the information it contains, which can be found in no other book.

There is a good deal of reading scattered along through it that will be interesting to everybody, especially to those whom it may concern. The style is plain, simple, concise and direct—no beating about the bush here. There is one page in the book which is worth twenty times its price to any physician and the whole is of greater value to the practitioner than larger or more pretentious volumes; in fact, as stated in the following pages somewhere, no member of the medical profession—eminent or humble—is fully equipped to practise the healing art who is not conversant with the principles of medicine and scientific knowledge herein set forth. All physicians who read the book will admit the truth of that statement, because its contents supply a defect in their education.

And one sentence from the second paragraph:

The book has then great merit as an educational work, and as such wonders will be wrought by it.

We confess that there was a temptation to search for that page worth \$15 to the reader, but when the author claims the possibility of "more pretentious volumes," that the paragraph quoted makes this volume to be, we doubt his judgment as to the value and abstain. From a cursory turning of the pages, we infer some previously published articles did not receive the attention the author thought that they should, and that in these articles he had presented, so he thought, valuable discoveries which the world has permitted to sink into oblivion. These observations are renewed, but the previous experience has not mellowed the author's temper, whence the present style. Many people can find much amusement, and money can be expended to more harm than by purchasing a copy of this book.

FANCIERS HAND-BOOKS. No. 1, CAGE BIRDS, pp. 118, paper, 15 cents; No. 2, THE DOG BUYERS' GUIDE, pp. 98, paper, 15 cents; No. 3, FANCY POULTRY, pp. 120, paper, 15 cents; No. 4, THE TOY DOG, pp. 76, paper, 25 cents; No. 5, THE DOMESTIC CAT, pp. 58, paper, 25 cents; No. 6, THE POULTRY DOCTOR, pp. 45, paper, 25 cents. Philadelphia: The Associated Fanciers, 400 N. 3rd St.

There are a series of handbooks apparently of great use to those who have domestic pets. There is a tendency of the publishers to advertise their own wares, and the press-work does not commend itself as a thing of beauty. Neither of these blemishes, however, take from the value of the pamphlets prepared by experts to give to amateurs the information desired either in selecting or caring for dogs, cats or poultry.

The Indiana *Bulletin of Charities and Correction* for June, 1906, gives the Proceedings of the Indiana State Conference and Charities, at Vincennes for 1905.

While all topics relating to "Charities and Corrections" should have especial interest for the medical man, a selection must be made of the many excellent papers read at this conference for notice here.

Mr. Alexander Johnson tells of the excellent results from manual training for feeble-minded women. An evening session was given to the discussion of tuberculosis, when Dr. Frank Billings, of Chicago, spoke on "The Need of Sanatoria for Tuberculosis;" Dr. J. N. Hurty, of Indianapolis, on "The Condition in Indiana;" "The Work of the Tuberculosis Commission" was described by Dr. Theodore Potter, of Indianapolis, the secretary of the commission. Dr. Joseph G. Rogers, of Logansport, spoke on "Tuberculosis in Charitable Institutions;" and Dr. H. C. Sharp, Jeffersonville, on "Tuberculosis in Reformatory Institutions."

MEMORANDA.

The second edition of "Diseases of Children," by Drs. J. Madison Taylor and Wm. H. Wells, has been translated into the Italian by Dr. Mano Flamini, of the Pediatric Clinic, of Rome. Contributions to the Italian edition have been made by Prof. Concetti and Dr. Valagussa. It is proving to be quite popular in Italy.

The *Medical Review of Reviews* for May contains an excellent article on "The Laboratory in Public Health Work," by Dr. Herbert D. Pease, of the New York State Department of Health.

The Monarch Book Company, of Chicago, announce the early publication of "A California Story by a Native Son." A new book by Dr. Frank Sydston, of Chicago, entitled "Poker Jim, Gentleman."

P. Blakiston's Son & Co., of Philadelphia, advise us the new edition of Morris' Anatomy is to contain articles by Americans. Some seven American contributors, from among our more prominent anatomists, are mentioned.

The Bulletin of the Bureau of Labor for May, 1906, contains an article on "Conditions of Living among the Poor," which is

based upon data contained in the household accounts of nineteen families living in the District of Columbia; these were secured for the purpose of investigation. The remaining articles are: Benefit Feature of British Trade Unions; Digest of Recent Reports of State Bureaus of Labor Statistics; Digest of Recent Foreign Statistical Publications; Decisions of Courts Affecting Labor; Laws of the Various States Relating to Labor, enacted since January 1, 1904.

Proceedings of the American Philosophical Society, No. 182. Two articles are of interest to the sociologist. President David Starr Jordan's, "The Human Harvest" and "Heredity and Variation, Logical and Biological," by William Keith Brooks.

The family is an important division in social classification, and the doctor's family should not be overlooked. We notice that McCall's Magazine is made use of for profit much more than some of its more pretentious contemporaries.

ACKNOWLEDGMENTS.

[It is intended to acknowledge all publications received since the previous issue, that are not otherwise mentioned in this number. The present list, however, is for publications received from July 1 to 30 inclusive.]

This notice will be considered a full return for the courtesy of sending us the publication. Additional notices and reviews will be made, depending upon the space available, and for the best interest of our readers as judged by the management. Publications treating of medico-social questions will be given precedence.

BOOKS.

ECZEMA. Dr. Brown. Philadelphia: P. Blakiston's Son & Co. Price, \$1.00.
28TH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF CONNECTICUT, for the year 1905. pp. 124, 296.

OFFICIAL CONGRESSIONAL DIRECTORY FOR THE USE OF THE UNITED STATES CONGRESS. 59th Congress, 1st session. Third edition; correction to April 3, 1906. Courtesy of U. S. Senator Penrose.

ABBOTT'S ALKALOIDAL DIGEST. A brief description of the therapeutics of some of the principal alkaloidal medicaments and other success-makers with suggestions for their clinical applications. By W. C. ABBOTT, M.D. Editor of the *American Journal of Clinical Medicine*, Chicago. The Clinic Publishing Co. 1906. Paper, pp. 227. No price.

INSTITUTIONS OF LEARNING.

California, College of Phys. and Surgs., Los Angeles, announcement session, 1906-7. *Colorado*, Bulletin of the Univ. Colorado, May, 1906, Medical Dpt. *District of Columbia*, School of Medicine, Georgetown Univ., announce-

ment, 1906-7. *Illinois*, annual announcement of the American Coll. of Med. and Surg. *Maine*, Bates College, president's report. *Maryland*, Baltimore Med. Coll., announcement, 1906-7. *Massachusetts*, Boston Univ. School of Med., dean's report; 34th annual announcement. *Michigan*, Michigan Coll. of Med. and Surg., 19th annual announcement. *Missouri*, Quarterly Bulletin Med. Dpt., Washington Univ., July. *Nebraska*, Creighton Univ., Catalog of Coll. of Liberal Arts, 1905-6. *New York*, Albany Med. Coll., announcement, 1906-7; The Auburn Seminary Record, July, 1906; Hobart Coll. Bulletin, July, 1906. New York Post-graduate Medical School and Hospital, 25th annual announcement. *Ohio*, Miami Med. Coll., 47th annual announcement. *Oregon*, Univ. of Oregon, 20th annual announcement of the Med. Dpt.; Willamette Univ., announcement Med. Dpt., 41st session. *Pennsylvania*, program Bryn Mawr College, 1906-7; Jefferson Medical College, 82nd annual announcement; Western Univ. of Penna., catalog, 1905-6. *Texas*, Bulletin of the University of Texas, No. 75. *Virginia*, Bull. of the Univ. of Va., Vol. 5, No. 5, Vol. 6, Sup. B to No. 2. *Canada*, Univ. of Toronto, Calendar Faculty of Medicine, 1906-7.

EXCHANGES.

California, So. Calif. Practitioner, July. *Connecticut*, N. E. Med. Monthly, July. *District of Columbia*, Public Health Rep., June 29, July 6, 13. *Georgia*, State Board Jour. of America, June. *Illinois*, Chicago Clinic, June; Jour. A. M. A., July, 7, 14; Bull. Chicago Dpt. of Health, June 30, July 7, 14. *Indiana*, Central State Monitor, July. *Kansas*, Jour. Kas. Med Soc., July. *Massachusetts*, Arch. of Physiological Therapy, June. *Michigan*, Medical Age, July; Bull. of Vital Statistics. *Minnesota*, St. Paul Med. Jour., July. *Missouri*, Interstate Med. Jour., July; Kansas City Med Record, June; St. Louis Courier of Med., July; Jour. Missouri State Med. Assoc., July. *Nebraska*, Western Med. Review, June. *New Jersey*, Jour. of the Med. Soc. of N. J., July. *New York*, N. Y. Med. Jour., July 7, 14; Literary Digest, July 7, 14, 21; McCall's Mag., Aug.; Watson's Mag., July; Bull. State Dpt. of Health May; International Jour. of Surgery, July; Medical Review of Reviews, June; N. Y. State Jour. of Med., July; American Jour. of Surgery, July; Critic and Guide, July; The Post-graduate, July; Our Dumb Animals, July; Albany Med. Annals, July; Buffalo Med. Jour., July. *Ohio*, Lancet-Clinic, June 30, July 7, 14; Jour. of Comp. Neurol. and Psychol., July; Eclectic Review, July; Columbus Med. Jour., July; Eclectic Med. Gleaner, July; Cleveland Med. Jour., July. *Pennsylvania*, Annals of Surgery, July; Med. Council, July. *Rhode Island*, Providence Med. Jour., July. *Tennessee*, Southern Practitioner, July. *Virginia*, Va. Med. Semi-monthly, July 12. *Wisconsin*, Ophthalmology, July; Wis. Med. Recorder, June. *Nova Scotia*, Maritime Med. News, June. *England*, British Med. Jour., June 23, 30, July 7.

MISCELLANEOUS.

Dpt. of Agriculture, Penna., Bulletin 145; American Oncologic Hospital, Philadelphia, 1st annual report; Pennsylvania Institute for the Deaf and Dumb, circular of information. The Correction of Exophoria by Development of the Interior, by W. H. Roberts, M.D., Pasadena, Cal.—*Rep.*

BULLETIN

OF THE

American Academy of Medicine.

(Specializing in Medical Sociology.)

VOL. VII. ISSUED OCTOBER, 1906. No. 9.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or article published in the BULLETIN.

LEADING ARTICLES.

A HISTORIC PARALLEL.

"Most of the profession interested, a few individuals not representative."

In great medical reforms or discoveries the so-called leaders not only do not lead, but they succeed, for a time, in ignoring or opposing to such a degree that for years or a generation the unnecessary suffering or high death-rate is not lessened. Any one of a hundred might be chosen, but especially illustrative is "The Story of My Life," by Dr. J. Marion Sims, from which I quote:

"As soon as the doctors had learned what they wanted of me, they dropped me. As soon as they had learned how to perform these operations successfully in the New York Hospital and elsewhere they had no further use for me. My thunder had been stolen, and I was left without any resources whatever."

"I had gone to that lecture-room with vindictiveness toward the medical profession. I now saw that most of the profession were interested in what I had to say, and, that a few individuals did not represent its public opinion."

"You have nothing to hope from the doctors, or from the profession, or from anybody, but by appeal to the heads and the hearts of intelligent women."

—(*Mr. Stuart to J. M. S.*)

"I find in the medical profession here such a degree of universal opposition to you and your enterprise, that I am sorry to say that I can not now give you the privilege or opportunity of addressing the profession under my auspices."—(*Dr. Stevens to J. M. S.*)

"All together, I was near going into an insane asylum as a man ever was, and not go there."

"No, Mr. Beattie, there isn't a particle of political sentiment in it; it is only that I do not belong to any dominant clique in the medical profession in New York. I am alone, and solitary, etc."

"The Woman's Hospital, from the day it was opened, had no friends among the leaders—among hospital men. I was called a quack and a humbug, and the hospital pronounced a fraud."

"How are we to live till I can get properly at work. I have but two dollars; * * * my clothes are not good enough to make the appearance that I ought. * * * I feel a power within me that is irresistible. I feel that I am in the hands of God, that I have a high and holy mission to perform, etc."

"Dr. Delafield had lost interest in the institution when he could not control it, and put his own 'tools' in the place to run it."

[Finally, the trustees compelled him, for the sake of his own self-respect, and of preserving a teaching institution, to resign his position, and leave the hospital he had, with such splendid success, created.]

"When I look into my heart I do not see that my motives are at all selfish. The only selfishness that I feel is the desire to do good, to be a benefactor of my race, and I sincerely pray that my labors may be blessed, so far as they tend to relieve suffering humanity, to advance the cause of science, and to elevate the condition of the medical profession. You can understand me. The world may not. It is a glorious thing to feel that you are above the dross and glitter of mere pageantry. Money is trash and may be blown away by the wind. Honors are evanescent and may be snatched by another. Even reputation may be tarnished by the slanderous tongue of an envious villain, but the proud consciousness of rectitude, coupled with true benevolence, lives in the heart of its possessor, and is as immortal as the soul itself."

Those who to-day in reference to other medical discoveries and reforms represent the Stevenses, Delafields, Motts and their friends, of the time of Sims, would say, for example in reference to "this eye-strain exaggeration:"

"All this is a very different matter!"

Yes, it is, in truth very different, and yet it is not so different. As Karr would have said, *plus ça change plus c'est la même chose*:

*The Discoveries and Causes
of Sims related:*

To the diseases of a few
people in a limited specialty
of medicine.

*Those of the Refractionists of
to-day relate:*

Directly to many of the
diseases of the entire body and
indirectly to those of many
special organs.

To surgical, organic, or macroscopic diseases, always dramatic and convincing even to crude minds.

To one charity in one city.

To a few women in one city.

To the cure of a few individuals.

To the furtherance of the legitimate ambition of a single surgeon.

To the testimony of one man, in one year as regards a medical reform.

To the great "Father of Gynecology."

To a poverty-stricken ambitious man, seeking for work to do, and an opportunity to do it.

To functional diseases of obscure and mysterious origin, which crude minds can know little or nothing about.

To all charities in all cities.

To a large proportion of all women, everywhere, and of men only somewhat less.

To the prevention of disease in millions, and for all coming time.

To the advantage of thousands of physicians.

To the testimony of hundreds for 34 years.

To obscure and ridiculous oculists, "with axes to grind" [*Sachs*], who have "a minor psychosis of glassing" [*Dana*]. But Delafield, Mott, Stevens, etc., said Sims was "a quack and a humbug, and pronounced the hospital a fraud."

To the modern refractionists [who have more practice than they know what to do with].

To Sims who was filled with a scientific zeal and lofty unselfishness for a great cause.

To men without such qualities, "paranoiacs," etc. [But what did the spiritual fathers of the present-day ignorers and haters of refractionists say of Sims?]

To a lost cause [until the tide turned and it was cunning policy to aid the victorious side].

To a lost cause [until the tide shall turn, and it becomes shrewd self-interest to be on the winning side].

To "the Great Sims," "the Father of Gynecology," etc. [when he won his fight against them. But did they ever acknowledge their criminal blunder?].

Those who say: "We always believed this and practised it" [when it shall be policy to say so, "when the tide turns." But will there be any acknowledgment of the criminal blunder? Surely not by those who have placed themselves on record].

And the tide has turned! The profession is interested in what the refractionists have to say, and a few individuals do not represent professional opinion. *Haec fabula docet* many things, but one of these many things is surely: All this is not a different matter at all. Essentially the same spirit that dominated Stevens, Mott, Delafield and the rest, still rules those opposing the eye-strain reform. And the motives of the advocates of that reform are to-day as noble and their methods as scientific as were those of Sims. *Mutato nomine, de te fabula narratur!*

GEORGE M. GOULD.

"IN ALL THINGS CHARITY."

Is it fair to demand of any class of men a higher standard of living than is accepted by the majority of that class as upright and honorable, unless their life involves moral turpitude or criminal practice? Please note: the question is not whether it is

fair to urge them, but to demand of them, with its accompanying idea of coercion. For example, the Council of Education outlines an ideal course, but it demands one of lower standing, because the time is not ripe for the other. The Council deems it not to be fair with the present condition to demand what it believes to be better.

The concept under this question is well illustrated in an incident occurring in the life of a prominent business man, whose death was recorded in the papers a month or so ago. He was a large, well-developed man, quite an athlete, and a skilled boxer. He had a desire to have a bout with the gloves with the famed pugilist, John L. Sullivan, and endeavored to arrange to meet him. The story runs that John L. was willing if the meeting would be in public where an admission would be charged. Of course, the contest never came off, but it is not fair to condemn the action of the professional because he had not the standard of sport for sport's sake of the amateur.

Again, is it fair to judge one set of men by the standard of correct living adopted by another group?

These questions are asked, expecting the answer in the negative. They are asked because so much has been said about the actions of the manufacturing pharmacist: much of it true, some of it wise, and some, in the judgment of the writer, unfair if not positively foolish.

This article takes the other side for the sake of securing the golden mean obtainable only by the presentation of both sides, for truth embraces three dimensions, and the most exalted masters of language can express but two of them plus a fraction of the third. Hence, apart from the rigid propositions permitting a mathematical demonstration, no single statement is apt to convey the whole of a fact. Since then, this article states the other side, let it be understood that the writer believes that not only the ingredients of any remedy should be known by the physician but also the working formula. Or, and it amounts to the same thing, they should be accessible to him if he desires to acquaint himself with them. He also believes that the making and selling of ready-made remedies to the indiscriminate public is dangerous

and harmful, and the purveyors of these remedies, blameworthy. But he believes much of this because of his medical training and the rules of conduct inculcated thereby. This belief should make his practice conform to his standard, and should cause him to urge others to do the same. It does not mean that he should demand others, differently trained, to conform to his standard under threats of incurring his displeasure.

Can we get a view of the subject from the point of view of the manufacturing pharmacist? Let us assume: a physician has been using a certain combination of drugs and thinks he is securing good results. His preparation is crude and nauseous to take. He sends his formula to a manufacturing pharmacist as a private formula to be made for him, asking if it cannot be made more palatable without impairing its efficiency. The commission is accepted and executed, and the product is a sample of the present-day, elegant pharmacy. The physician receives the preparation, uses it in his practice, speaks of it to his friends. He may not write for the journals, nor read papers at his medical society, but he makes no secret of his supposed discovery.

Or, it may be, instead of writing directly to the manufacturing pharmacy, he orders it through his local druggist, and dispenses by prescription, as do also his friends, and, in process of time there is a demand for it from drug stores in the neighboring villages, and the first druggist becomes a jobber of it for the surrounding country, ordering it in greatly increased quantities, and has it put up in standard-sized containers, properly labeled for his convenience. But everywhere it is dispensed only by a physician's prescription, or, at least, as much so as are Galenic preparations, and there has been no advertising of it in the commercial sense of that term.

Now, to the ordinary business-trained conscience, is there any difference to his using his laboratories for this purpose than in preparing upon an order the "Mirabile Elixir of Maidenhair Fern," a statement of whose virtue adorns the rocks by the way-side, meets the gaze of the railway traveler in gigantic letters on immense sign-boards, and fills the advertising columns of the general press? The order is given, the commission carefully executed, the product delivered. How many business houses pre-

determine the use to which the goods offered by them for sale is to be put?

This condition is stated not to defend it; the conscience of a man trained to the best traditions of the medical profession condemns this general classification. But, in the spirit of fairness, a protest should be raised against the rabid vehemence of some who, with hands raised in holy horror, are urging methods of correction worthy the brain of the demagogue labor agitator. It is possible that the "dope" for the patent medicine fiend is prepared by a reputable house; it is equally possible that the furnishings for a house of ill fame were furnished by the most fastidious shop of its city. But neither prostitution nor the sale of "dope" will be stopped by threats to injure the business of these houses.

There is always the danger in these methods of wholesale condemnation of the acts of others, that the reformer is striving to pluck the mote out of his brother's eye while his own vision is defective because of the presence of a beam. The animus of much that has been written on the subject is so evident that one may read it while running. And those who are joining with them in the cry must accept the risk of being judged by the company they are keeping.

Nothing too severe can be said of the man who makes money by duping suffering humanity with false promises to cure, whether in the consulting room of the man who boasts himself of his "ethical" mode of life, or by the veriest Phillistine of a "dope" dealer. Pulling down may not result in a building up, and revenge never makes for righteousness. The evil is apparent, there must be a way to correct it, and to the discovery of this way we should direct our efforts.

CHARLES MCINTIRE.

HOW MAY THE MEDICAL AND TEACHING PROFESSIONS COOPERATE TO IMPROVE THE MORAL, MENTAL AND PHYSICAL CONDITION OF THE YOUNG?¹

I.

HOW MAY THE MEDICAL AND TEACHING PROFESSIONS COOPERATE TO IMPROVE THE MORAL, MENTAL AND PHYSICAL CONDITION OF THE YOUNG?²

By S. A. KNOPP, M.D., New York.

I desire first to express to the Academy my deep appreciation of the honor which has been conferred upon me by my having been selected to open the symposium on this important topic.

In the short space of time allotted to me, it is of course out of the question to treat this theme as exhaustively and as thoroughly as it should be treated. All I may be able to do is to present some ideas concerning the respective duties of the two professions tending toward the desired end, namely, to attain a better type of American citizens, stronger in mind, higher in morals, and stronger in physique. However, at the outset I wish to say that these two professions will be powerless to cope with the problem, unless the government and our large-minded, generous philanthropists coöperate with us in our labors.

To begin at the beginning we should have the courage to state and to teach that the strength of the nation does not depend upon the number of its citizens but on the kind; not upon quantity but upon quality. In order that disease, crime, idiocy, mental and moral deficiency shall not be perpetuated through indiscriminate procreation, we must strike at the root of the evil. I am fully aware of the difficulty we are confronted with when trying to have laws enacted to prevent the syphilitic, the acute tuberculous, the chronic insane, and chronic alcoholic, or even only the chronic criminal, or idiot from marrying, but a beginning has been made in some states in this direction, and we should continue our

¹ A symposium discussed at the Thirty-first Annual Meeting of the American Academy of Medicine at Boston, Mass., on June 4, 1906.

² Opening presentation of the subject.

efforts and not be discouraged. In the meantime, much can be done by us individually.

The family physician can often, by gentle persuasion and convincing arguments, accomplish as much or even more than the law in the direction of preventing marriages when evident disastrous results are to be feared. If marriage can not be prevented, we should do all we can to teach the parents how not to procreate a diseased race. In tuberculosis for instance the physician has a divine mission to perform in preserving the life of the tuberculous mother which is always endangered by pregnancy, and preventing the transmission of a tuberculous diathesis to an innocent child. I feel very strongly on this subject, but, as I have said on previous occasions, I know that there are many worthy men and women, inside and outside of the medical profession, who differ with me. However this may be, I am willing to take the responsibility before the law and my God for each time I have taught a consumptive husband and wife not to procreate a tuberculous child.

It is prevention to which we must look. In order that a child may grow up to as nearly perfect manhood or womanhood as possible, its prenatal condition must not be less favorable than its postnatal life.

How, for example, can the pregnant woman who is obliged to work in a factory or mill almost until the very hour of her confinement be the mother of a healthy child? From John Spargo's recent epoch-making book, "The Bitter Cry of the Children," I beg leave in relation to this subject to quote the following:

Cases in which women endure the agony of parturition amid the roar and whirl of machinery, and the bed of childbirth is the factory floor, are by no means uncommon. From a large mill, less than twenty miles from New York City, four such cases were reported to me in less than three months. Careful personal investigation in each case revealed the fact that the unfortunate woman had begged in vain that she might be allowed to go home. One such case occurred on the morning of June 27th, of last year (1905), and was reported to me that same evening by letter. The writer of the letter is well known to me and his testimony unimpeachable.

A poor Slav woman, little more than a child in years, begged for permission to go home because she felt ill and unable to stand. Notwithstanding that her condition was perfectly evident, her appeal was denied

with most brutal oaths. Cowering with fear, she shrank away back to her loom with tears of shame and physical agony. Soon afterwards her shrieks were heard above the din of the mill, and there in the presence of scores of workers of both sexes, many of whom were girls of fourteen years of age, her child was born.

Commenting on this, Mr. Spargo continues:

At present the English law forbids the employment of a mother within four weeks after she has given birth to a child, and the trend of public opinion seems to be in favor of the extension of the period of exemption to the standard set by the Swiss law. So far as I am aware there exists no legislation of this kind in the United States, in which respect we stand alone among the great nations and behind the savages of all lands and ages.

As pathetic as the incident of cruelty to child-bearing mothers related by Mr. Spargo, is the graphic description of the life of the married woman, in Mr. Upton Sinclair's recent book, "The Jungle."

Here we have a highly sensitive woman with a child under her heart obliged to work from morning till night in unsanitary, depressing surroundings until the very hour of her confinement. The perpetual noise of machinery, the sickening odors, and the overstrain—what results must they produce on the mother and the child alike? Is it a wonder that the women working under such conditions in those stock-yards complain of frightful headaches, are subject to fits and aimless weeping? Mr. Sinclair is right when he makes the husband of such a woman say that "this work was killing her by inches, she was not fitted for it—no woman was fitted for it—no woman ought to be allowed to do such work—they ought not to marry to have children."

Elie Reclus tells us that among savages it is the universal custom to exempt their women from toil during stated periods prior to and following childbirth.

In a number of European countries and particularly in Switzerland, the employment of a mother is prohibited for two months before confinement, and the same period afterwards.

Let us by all means strive to have similar laws enacted and have them rigorously enforced. At the same time let us not fail to impress upon our philanthropists the fact that a charity directed towards making it possible for the future mother to suspend

work two months previous and two months after her confinement, will be productive of healthier mothers and healthier children.

The newly born child should have its natural food, from its mother's breast. Only in rare instances should it be necessary to substitute careful artificial feeding. The malnutrition of the infant, due either to the insufficiency of the mother's milk or ignorance regarding artificial feeding, is by no means confined to the poor alone. Prof. Holt, in his admirable book on "Diseases of Infancy and Childhood," very justly says: "One of the most striking things about children suffering from malnutrition is their vulnerability. They 'take' everything. Catarrhal processes in the nose (adenoids), pharynx, bronchi, are readily excited, and, once begun, tend to run a protracted course. There is but little resistance to any acute infectious disease which the child may contract."

My personal and somewhat extensive experience in tuberculosis has shown me that artificially fed children and, when there are larger families, usually the late comers—fifth, sixth, or seventh child—contract tuberculosis more frequently than the first-born and the breast-fed. This can be accounted for on the one hand by physiologic reasons, on the other by economic ones. The father is older and less vigorous, the mother worn out by frequent pregnancies. The larger number of children to support do not permit the parents to give the late comers the same care and ample nutrition which it was the privilege of the first ones to receive. What can we do to have more breast-fed and vigorous babies and thus a more vigorous race, a healthier type of American men and women enough to resist a tuberculous invasion, or for that matter any other infectious disease to which a weakened organism easily falls prey? No amount of wealth, no family prestige or social connection can give the child that inheritance which it receives when born of vigorous parents, nursed by its own mother and tenderly cared for until able to care for itself.

Let the mothers who, for the sake of pleasure and convenience, abandon the divine privilege of nursing their own children, change this unnatural practice. I feel certain that if they but knew the

difference in the physical and intellectual make-up of their sons and daughters when tenderly nursed by themselves, or when handed over to strangers to become bottle-fed babies, they surely would do differently. I know it will be said that not every mother can nurse her infant. This is true in some instances; but to the woman, the future mother of mothers, I like to say that it has been statistically demonstrated that if one generation of mothers fail to give their infants, and particularly female infants, food from the source which nature has designed, the next generation of mothers will have great difficulty in the natural feeding of their infants. The reverse has also been demonstrated and it has even been shown that when mothers not fully able to supply the infant with food, have supplemented the artificial feeding as best they could with their own breast, their daughters have been able to fulfil the divine duty of nursing their infants, if not always entirely, at least in a much greater degree than the preceding generation. Let us draw a lesson from this scientific fact which is corroborated by nature's own laws. This lesson once learned, the coming generation of American men and women may yet surpass all other nations in physical beauty, intellectual attainments, and moral strength.

The artificial feeding of a baby should not be left to the discretion of the mother or midwife, but should be taught to well-to-do people by the family physician, and to the poor, by physicians designated for that purpose by the Board of Health.

We are all familiar with the excellent work that is done by the Health Department's physicians in many of our cities, in teaching the poor how to feed their babies, particularly in summer. This work often supplemented by philanthropic enterprises, pure milk depots, ice stations and outings given to mothers and children, has reduced the mortality from summer diarrhea and similar infectious diseases to a considerable degree, but much is yet to be done in this direction. There are so many mothers among our laboring population who have had, owing to early struggles, little opportunity to get even a primary notion of how to keep a house clean, or how to cook plain but good substantial meals with modest means. Cooking lessons in our public schools will, I

presume, in time do away with ignorance in the coming generation. But there is many a young mother to-day living in our crowded tenements who would be grateful if she could be taught the lesson of good and economic housekeeping and cooking. Here is a field of the greatest usefulness in which the noble-minded, cultured and educated women may help their less fortunate sisters.¹

We are now coming to the point where the coöperation of pedagogics and medicine begins. At what age, and for how long a day, and for how many years should a child go to kindergarten? What sanitary precautions should be taken to prevent the contraction and propagation of disease in such institutions? To every public and private kindergarten a physician should be attached whose duty should be to examine every child before it is admitted as a pupil. Furthermore, the physician should visit the kindergarten daily so as to discover if any child present is afflicted with an infectious, communicable or contagious disease. If there is one its exclusion with a note to the parents should at once be effected. I do believe that common colds, bronchitis, coryza (which means often nothing less than a gripe) should be included in this list.

A kindergarten can be in operation throughout the year, and in mild weather the sessions should be held in the open air, on roof garden or playgrounds. A child can never have too much play of the right kind. The sessions of course should not be long and always with frequent recesses. Two hours of kindergarten instruction should suffice between the ages of four and seven. With a few exceptions no child is physically and mentally sufficiently equipped to enter the public or private school for regular instruction before the age of seven. In this conviction I do not stand alone; many authorities in pedagogics and medicine share this opinion, among them the Nestor of New York physicians, my venerable friend Prof. A. Jacobi.

When the child enters the public or private school to begin its studies in the primary grades, a new problem is presented. Its

¹ Miss Lillian D. Wald, of Nurses Settlement, has equipped for this purpose a flat in the midst of the crowded districts where model housekeeping is taught and prizes given for the best work.

solution depends upon the satisfactory coöperation of the private physician representing the interests of the family, the school physician representing the Board of Health, the teacher and superintendent representing the Board of Education, and upon the philanthropist who voluntarily gives his aid to supplement the work of the authorities in their effort to avoid preventable diseases, and develop the minds and bodies of the children entrusted into their care.

In an audience of this type, it would seem almost needless to point out the necessity of a thorough physical examination on entering school, a daily inspection and a periodical re-examination of all children, in order to eliminate preventable, contagious and communicable diseases, and to develop a sound mind in a sound body. I am convinced that through careful daily inspection the morbidity and mortality from such children's diseases as measles, whooping cough, scarlet fever, diphtheria, trachoma, pediculosis, chorea, etc., would be materially diminished and has been diminished in communities where school inspection has been carried on with thoroughness. The first examination must of course always include an examination for defective vision, defective hearing, defective mastication, glandular growth, vegetations in the retropharynx, deformities, weak or diseased lungs, heart disease, or inferior mentality, etc. That the conditions just enumerated must impair the intellectual statue and moral development of any child is obvious. I have no more striking evidence for this than a table kindly furnished to me by Dr. J. J. Cronin, Assistant Chief Medical Inspector of the Health Department of New York, which shows the number of defects found at a recent examination of Truant School No. 120—88 boys were examined and out of these, 77 were found defective. In 62, anterior glands were discovered, in 48, defective vision was discovered, 34 had bad teeth, 19 had hypertrophied tonsils, 17 had defective nasal breathing, 13 had skin disease, 9 were discovered as having bad mentality, 8 had post-nasal growth, 3 suffered with cardiac disease, 2 had deformity of extremities, 1 had defective hearing and 1 had a defective palate. It goes without saying that in many of the pupils there was association of defects; thus 8 had defective

vision and glands, 7 defective vision, defective teeth and glands, and so on.

If we remember that truancy is the first stigma of criminality and mental depravity, does it not seem that prevention in this instance is indeed economy? But it is not only the truant who will be morally and mentally benefited by the careful medical examination of the school child and the removal of existing physical defects.

How many a time has the deaf child been considered dull, and put back in his studies until his defect had been discovered, and by his removal to a front seat where he could hear the teacher, he has been made bright and happy. How many a time has the myopic or astigmatic child been scolded for not being able to see the drawings on the blackboards or read and write properly, when with the use of proper glasses all his unhappiness and seeming lack of intellect and interest had been cured as if by magic. How often has the dull, hard-of-hearing mouth-breather been made bright and intelligent by the removal of the vegetations of the retropharynx? While the discovery of such defects as just mentioned lie primarily within the province of the examining physicians the coöperation of the teacher is of course inestimable. Both should work hand in hand. Spinal curvatures should be prevented by proper postures, proper desks, frequent change of position and exercise.

The following table will show the frequency of the diseases not in the truant child as in the above-mentioned statistics but in the well behaved one. For the following summarized report of 7166 examinations from March 27, 1905 to April 28, 1905, I am again indebted to the courtesy of Dr. Cronin.

No. of cases of :	
Bad nutrition.....	632
Enlarged anterior glands.....	1221
Enlarged posterior glands.....	417
Chorea.....	85
Cardiac disease.....	133
Pulmonary disease.....	127
Skin disease.....	126
Deformity of spine.....	88

No of cases of :	
Deformity of chest.....	100
Deformity of extremities.....	133
Defective vision (objective).....	1273
Defective vision (subjective).....	517
Defective hearing.....	265
Defective nasal breathing.....	843
Defective teeth	1946
Deformed palate.....	121
Hypertrophied tonsil.....	602
Posterior nasal growths.....	704
Bad mentality	650
Requiring medical attention.....	3132

To show the actual work accomplished by our department for the health of New York City's school children let me add to Dr. Cronin's special report a few figures from the general report made public by Health Commissioner Darlington since the reorganization of the system of medical school inspection of the Board of Health on March 29, 1905. The inspectors have examined 55,332 children, and have reported 18,182 cases of defective teeth, 16,394 cases of defective vision and 6,182 cases of defective nasal breathing. Treatment was necessary in 33,551 cases. The conditions most frequently encountered were enlarged anterior cervical glands, visual defects, and imperfect teeth, each of which more than 14,000 cases were recorded. During the last year 88,964 visits were made to the schools by medical inspectors, and 18,844 children were excluded for contagious diseases. Of this latter number, 8,833 were for eye diseases, 4,692 for pediculosis, 2,018 for skin diseases, 312 for measles, and 74 for diphtheria. During 1903, 65,294 children were excluded, and during 1904, 25,369. Much importance is attached to the work of the school nurses, through which many children that would formerly have been excluded are enabled to continue in attendance.

The curriculum of the school for all classes should be arranged so as not to tax the mind and nervous system to the detriment of the physical development.

There should be sufficient physical exercise, particularly breathing exercises. I, personally, favor singing and recitation outdoors whenever the weather permits.

The reason why many of our school children do not sleep enough is, perhaps, in as many instances the fault of the parents as it may be the fault of the curriculum instituted by the Board of Education. Up to its fifteenth year a child attending school should have at least nine hours sleep in the summer and nine and a half in winter. The overtaxing of the mind and nervous system of the girl at the age when she enters womanhood, should be carefully avoided. In every instance when the pupil feels tired, overworked and inattentive, inquiries should be made at the home of the child, concerning its mode of life. In many cases it may be discovered that thoughtless parents impose upon the child the performance of so many household duties that its health becomes undermined. The child labor in the homes of many of our school children, is as criminal and disastrous as it is in our factories.

I have known of homes in which the elder children, the boys and girls from ten to twelve years old, were made to do much more house work than many a servant would do, and this in addition to the child's school duties. There is a child-labor problem in far too many homes which I believe needs looking after. I have known of homes where the mother had died and the care of four younger children, ranging in age from one to eight years, was left to the oldest daughter, a girl of ten, truly a little mother but a martyr at the same time. The father did not realize the condition until the child became ill and contracted tuberculosis. The child-labor problem confronts the physicians and educators who wish to improve the mental, moral and physical conditions of the young, with all its perplexities.

I, personally, hold child-labor the curse of our nation, responsible for the frequency of tuberculosis in childhood, the prevalence of nervous diseases in children, young men and women, and, last but not least, responsible for alcoholism in the young. How can we expect the delicate growing system of a child, wrecked often by eight or ten hours' day labor and in some instances even by long hours of night-work, to resist the temptation of drink? I can not enter here into enumeration of the states in which, be it said to their shame, child-labor is still permitted to exist.

Felix Adler, speaking in New York the other day, declared that

child-labor in the United States was steadily increasing. There are, he stated, 10,000 children working about the mines, 7,000 in the glass industry and 60,000 in the southern textile mills.

There are many noble men and women endeavoring at this moment to combat this fearful practice by the enactment and enforcement of child-labor laws. No less a personage than our distinguished President has taken up this question, hoping to accomplish the suppression of child-labor throughout the land.

President Roosevelt in his recent message at the opening of the last session of Congress, recommended in strong terms a model child-labor law, in order that Congress, by wise and discriminating legislation for the District of Columbia, might set a worthy example to the states in which it has no power to legislate on this subject. Permit me to read to you a few passages from an appeal regarding this bill issued recently by the National Child-labor Committee¹), which, I think, speak for themselves.

"We request the friends of the 29,000,000 children under 16 years of age in the United States, for whose industrial guardianship and for the protection of whose rights to healthy physical development, education and leisure the National Committee is organized, to coöperate in recommending this bill to the favorable attention of their members in Congress. It will mean much for our cause in every state to have in the National Capitol a reasonably strong and fair law on the subject of child-labor. Members and friends of local child-labor committees, of educational charitable and philanthropic societies, of women's clubs and all other organizations interested in this movement, are earnestly requested to write at once to their respective senators and members of Congress, sending them, if possible, the enclosed copy of the bill to be presented, and urging the passage of this bill."

From Commissioner Darlington's report, you must have noticed the large number of children (18,182 out of 55,332) who had defective teeth. I would not wish to recommend free dental service for all school children, but it would seem to me well to urge the parents who are able, to have their children's teeth

¹ This appeal was accompanied by a copy of a most excellent bill proposed to regulate the employment of child-labor in the District of Columbia.

attended to at their own expense. The children of the absolutely poor should be attended to by a dentist employed by the Department of Health or Board of Education.

We have found it advantageous in New York to treat trachoma in a room fitted for that purpose in the school building. The children treated thus did not lose one-tenth part of the time that was formerly consumed by having them go to a distant dispensary where they often had to wait for hours until their turn came. If we do wish to look after the teeth of our school children, some such arrangement will have to be made unless a dental clinic is located near the school.

Of much greater importance than the care of the teeth in school children is, of course, the care of the eyes and ears. In an authoritative article ("The Eyes and Ears of School Children," *Medicine*, April, 1906) Prof. Frank Allport, M.D., of Chicago, Ill., says that of the 20,000,000 school children in the United States, about 16,000,000 or 80 per cent. are suffering from some eye, ear, nose or throat disease which can easily be detected and generally cured, if the public health and educational authorities will only agree that this work shall be done. Further on he says:

It may also interest students of sociology to know that there are in the United States over 300,000 blind people, many of whom would not have become blind if their disabilities had been detected during school life, and that it costs the public in the neighborhood of \$15,000,000 to care for these unfortunates. Reducing the question then to the mere sordid standard of money, is it a matter of public economy to neglect the eye of school children?

The number of pupils which should be assigned to one teacher should never exceed fifty in the primary grades, and as far as practicable the mentally defective should be weeded out and placed either separately, or in lower grades where they can keep up with the work done by the others. This should be done not only in the interest of the pupils, but in the interest of the teacher as well. A class, in which there are placed indiscriminately the mentally defective and the mentally bright, cannot make the progress the curriculum prescribes and when the work is forced, a nervous strain is put upon teacher and pupils alike.

There should be opportunity for appropriate training for the

mentally deficient as well as for the especially talented pupils. Special schools for the unusually gifted have been recently suggested in Germany "to care for the neglected genius whose labor, if properly directed, might be of inestimable value to civilization."¹

In our anxiety to relieve the condition detrimental to the physical, moral and mental development of the children, let us not forget the teachers who have also a nervous system. Those of us who have the fortune to come in contact with them should know how often their devotion to duty is the cause of a physical breakdown. Here as in all such matters prevention is better than the uncertainty of cure.

I have seen a good number of young ladies who after they had passed the teachers' examination became nervous wrecks, a condition which some were not able to overcome for the rest of their lives. They would lose control of their nerves at the slightest provocation and, as a result, in spite of their splendid intellectual training they made poor teachers.

A somewhat more judicious management on the part of the examining board and to spread the examination over a greater number of days, is all that is necessary to remedy this condition.

I now come to a part of our subject which has been of deep concern to me for a number of years. I refer to the underfeeding of the pupils of many of the public schools who come from homes of the poor. In investigating the causes of tuberculous and scrofulous diseases of childhood, particularly among our tenement dwellers, I came to the conclusion that underfeeding and improper feeding was the primary and even more frequent cause than bad housing and unsanitary conditions in general. Many observers in this and other lands have arrived at the same conclusion. Although in America the investigations along this line have not been carried on as thoroughly as in other countries, enough work has been done by such men as Mr. Hunter, Mr. Spargo and others, to show the seriousness of the situation. Let me quote again from Mr. Spargo's book ("The Bitter Cry of the Children") when it was suggested that 60,000 or 70,000 children go to school in our greatest city in an underfed condition, and

¹ *American Medicine*, June, 1906.

when Dr. W. H. Maxwell, superintendent of the Board of Education of New York City, declares in a public address that there are hundreds of thousands of children in the public schools of the nation unable to study or learn because of their hunger, something of a sensation was caused from one end of the land to the other.

Investigations in this matter are not easy for, be it said to the honor of the average American child of the poor and of the poorest of the poor, relatively few are willing to acknowledge the poverty of their parents. Here is a story told by a principal of a school to Mr. Spargo. I will give it in the principal's own words. It relates to a little boy called Tony X.

I went into a class-room and asked: "How many children had no breakfast to-day? Show hands." Not a single hand went up. Then the teacher said, "Why, I am sure that boy, Tony, looks as if he were half starved." And he really did, so I told him to stand up and I questioned him. "Did you have any breakfast this morning, Tony?" I asked. He hung his head for a minute and then said, "No mum."

"Now, Tony, wouldn't you like to have a good breakfast every morning—some hot coffee and nice rolls?"

"Yes, mum."

"Well, do you know the Salvation Army—where they give breakfast to little boys who need them?"

"Yes, mum."

"Well, if I give you a ticket, won't you go there to-morrow and get your breakfast?"

The little boy's eyes flashed and he looked straight at me and said, "No, mum, I don't want it." Really, I admired his spirit. Poor as he was he did not want charity.

Dr. Cronin's investigation shows that about 9 per cent. of children suffer from bad nutrition. Mr. Spargo privately examined, in sixteen New York schools, 12,800 children and out of that number 987 (or 7.01 per cent.) were reported as having had no breakfast at all, and 963 (that is to say, 15.32 per cent.) had a totally inadequate breakfast. But the underfeeding of these children is not only due to "no breakfast" or the inadequate breakfast but also due to the hasty luncheon, consisting in many instances of a cracker, an apple, a slice of bread, or some cake bought for a few pennies, and sometimes candy instead.

In many countries, particularly France, Germany, England, Italy, Switzerland and in our own country, a number of cities have

realized that such lunches are not enough for growing girls or boys, and have undertaken to provide children with warm, substantial and nutritious mid-day meals, either free or at cost price. Where this has been done it was demonstrated that the pupils have been able to do better work, that there was less disease, that the children increased in weight and were made happier in every respect. I do not believe in pauperizing and would always encourage the payment of a few pennies for the luncheon, but I would not be too strict in this matter. I would rather give lunch to ten children whose parents could pay than to have one innocent little fellow suffer from starvation. Where Boards of Education and Boards of Health cannot agree on this, let philanthropists come forward to the rescue.

There is one feature in our present system of education and care for the physical development of our young, which seems to be neglected in all our primary public educational institutions. I refer to the instructions in swimming and the incidental compulsory bath. Never was I more impressed with the necessity of such instruction than when duty called me to my service on North Brother's Island on the day of the fearful Slocum disaster. I am convinced, to-day as I was then, that hundreds of those little ones could have been saved from the untimely death to which greed, inhumanity to man, and laxity of law had condemned them, had they known how to swim. Every well-equipped college has its swimming tank; why should a public school be behind in anything which may not only tend to the physical development of its pupils, but may be instrumental in case of accident to save their own lives or the lives of others? I am furthermore convinced that compulsory swimming lessons would give to many a pupil, coming from the overcrowded tenement districts and often unsanitary homes, a cleansing bath which he otherwise would not get.

The playground or the roof garden and, if possible, a gymnasium are, of course, as essential or even more so than the swimming tank.

The importance of gymnastics, the utility of judicious athletics for school boys and girls and college students of both sexes, no

one familiar with college life, the exuberance of youth, the necessity of outdoor exercise after hours of confining study, would wish to deny. Only against hazing and such sports as experience has demonstrated to have in many instances proved disastrous to individual pupils, would I protest. Overtraining, even for such innocent sports as running, boating, etc., has often proved likewise disastrous. Whenever I am called to examine for tuberculosis a college graduate who has distinguished himself in athletics during his college course, I am always apprehensive, for the prognosis proves almost invariably more unfavorable in such a case than in the average individual.

Wherever the locality permits it, school farms will form a valuable adjunct in the education of our children. I cannot speak too highly of the pioneer work done in this direction by my esteemed friend, Mrs. Henry Parsons, in New York, to whose untiring energy we are indebted for this excellent philanthropy.

The first children's school farm in New York was conducted by Mrs. Parsons, on an unimproved site, condemned for a future park, at Fifty Third Street and Eleventh Avenue and overlooking the Hudson River. It had been a dumping ground for years. The only available spot in the whole eight acres the first year was 114 feet by 84 feet. No plow in the park department was strong enough to break the ground, and a city contractor had to be resorted to for a heavy street-breaking plow. Then lime, rags, wire, bottles, tin cans and stones were unearthed—but the conquering of difficulties is one of life's most exhilarating lessons. Here was a neighborhood where the rougher element considered they owned everything in sight. They called themselves the Sons of Rest. Going to prison for ten days or six months was simply an incident in their lives, which they spoke of as "going to Larry Murphy's farm," or "a sail up the river." The city seemed to have forgotten this section.

Only unlimited faith in the value to mankind of what one is endeavoring to accomplish, can have caused Mrs. Parsons to adhere to her work through the worst conditions, opposition, and criticism.

During the summer of 1904 the real work of construction in the

park began. Fearing she might lose the ground already gained with these people should the work be discontinued during the period of park construction, Mrs. Parsons, assisted by her son and daughter, braved the discomforts and continued the work on a smaller area than formerly. At this time the permanent location of the "farms" had been graded and temporary structures for a tool-house and a farmhouse had been completed. Mrs. Parsons and her helpers were to be found on the ground daily, from 9 A.M. to 6 P.M., patiently awaiting the arrival of the top soil needed and receiving applications for the 4 by 11 plots. "Mrs. Parsons, may I have a farm?" was asked by more than 500 children, more than half of whom were refused, owing to lack of space.

Mrs. Parsons' work has attracted attention throughout the United States. The "farms" have been visited by thousands of persons representing educational institutions of this country and abroad. They are located in the DeWitt Clinton Park in the heart of the tenement districts, from Fifty-Second to Fifty-Fourth Streets and from Eleventh to Twelfth Avenues. It is several acres in extent and now one of the most perfect parks in the country. School gardens have the high indorsement of the United States Department of Agriculture. The latter is constantly occupied in coöperative work with the school gardens in Washington and other cities of the United States.

It is in the study of nature, of plant and animal life, that coeducation can be most advantageously carried on for children. There are as many opponents to, as advocates for, coeducation, and I have some hesitation in expressing an opinion. In small communities, coeducation throughout school life seems to be necessary for economic reasons. Personally, I do not see why partial coeducation at least should not be feasible and even advisable at certain ages. Between the ages of 12 and 17 it might be best to have separate classes, preferably separate schools and teachers and superintendents of the respective sexes, as it is during that time that the manliness in the boy and the womanly nature in the girl develop perhaps to a better advantage under different environments. In college and university life, partial or even complete coeducation would, I think, be less objectionable. During

the first two years of my college career, I was in a small institution where coeducation was a feature. It always seemed to me that the presence of the ladies had rather an ennobling and restraining influence on the young men.

The teaching of popular hygiene and physiology should be made a part of the curriculum as soon as the age and understanding of the pupil will permit. Teaching the pupils how to prevent such diseases as tuberculosis by cleanliness is certainly a matter of importance. With the growth of intelligence and understanding, with the entrance of the girls and boys into the age of adolescence, the physiology of sexual life and embryology should be taught to them preferably perhaps by teachers of their own sex. I cannot too strongly recommend teaching older pupils all that is to be known of how to live a pure and moral life, sexually as in every other respect. They should know the existence of such contagious diseases as gonorrhea and syphilis and their mode of prevention. Full knowledge in such matters is better than ignorance. Those afflicted with contagious diseases should be excluded until a cure is established.

For tuberculous and crippled children there should be school sanatoria on the seaside or inland. There the teacher who contracted tuberculosis in the performance of her duty should be given an opportunity to get well. If the disease is too far advanced to make the continuation of teaching advisable, a pension should be provided for the tuberculous school-teacher so as to make her as comfortable and free from care as possible. Atypical children and the mentally defective should be treated in special schools by competent and specially trained instructors.

Private and public schools, college buildings and dormitories, gymnasiums, swimming tanks, etc., all should be models of sanitation, models of ideal lighting and perfect ventilation.

For a nation to look after its children's welfare from their prenatal state to their entrance upon man- or womanhood requires the coöperation of intelligent parents, devoted teachers, competent family and school physicians, perfect harmony between health and school authorities, a wise and benevolent government, great-hearted, generous philanthropists; and, besides all this,

large sums from the public funds. To the \$100,000,000 invested in the public schools in this country to-day, a like sum may have to be added for the destruction of unsanitary schoolhouses and the construction of new and better ones; for the employment of more teachers and more school physicians and the establishment of special school sanatoria. But the money thus spent will be well spent. I, for one, at least could not see the surplus of our wealth better invested than in preparing a higher, stronger and better type of citizens to take our place.

I know that in presenting to you in this fragmentary way what I think the children of this nation need in order to improve their mental, moral and physical condition, and enable them to become ideal American citizens, I may be accused of having too vivid an imagination and of hunting unattainable ideals; but upon the type of men and women we make our children, depends the destiny of our republic. The whole world looks upon us as the ideal country and I am convinced that if we can but make of our children the right type of citizens, we can sustain this reputation and become the leader of nations. In defense of my (let me trust) pardonable optimism, I will close with the words of one of America's greatest citizens, the late Carl Schurz, whose mortal remains we have just laid to rest.

"You may tell me that my views are visionary, that the destiny of this country is less exalted, that the American people are less great than I think they are or ought to be. I answer, ideals are like stars; you will not succeed in touching them with your hands. But, like the seafaring man on the desert of waters, you choose them as your guides, and, following them, you reach your destiny."

16 West Ninety-Fifth Street.

II.

THE DUTY OF THE FAMILY PHYSICIAN IN REGARD TO THE PROPER MENTAL AND PHYSICAL DEVELOP- MENT OF THE CHILDREN UNDER HIS CARE FROM INFANCY TO ADOLESCENCE.

BY DUDLEY A. SARGENT, A.M., M.D., S.D., Cambridge, Mass.

Some years ago at a meeting of the American Public Health Association in New York, President Barnard, of Columbia University, calmly informed his medical hearers that their doom was sealed under the steady advance of modern science. During the past ten years there has been a remarkable falling off in this country, and in Europe, of young men adopting medicine as a profession. In the meantime the pharmacists, druggists, osteopaths, Christian Scientists and mental healers of one description or another are said to be rapidly augmenting their numbers and their incomes. If these statements are true it would seem to indicate that great changes are taking place in the public mind in regard to the theory and practice of medicine. It would be futile for me in the brief time allotted to this paper to attempt to compass all the reasons that have led to these changes. I can at best only allude to a few. In speaking of medicine it must never be forgotten that this science has arisen from mysticism, supernaturalism and superstition, and was for generations under the thralldom of astrologers, priesthood and the so-called medicine men and fakirs. To this very day the sign under which most physicians write their prescriptions is not the sign for receipt as so many innocently believe—but a mythological symbol invoking the help of Jupiter or some other heathen god. The choice Latin in which physicians' prescriptions are still written appeals rather to the superstitious awe of the patient than to his common sense. People for centuries have regarded disease as a "thing" or "entity" that took possession of the body, and was to be kept out or driven out by amulets, drugs or some supernatural agency. The age of charms and amulets is passing away, but the craving for medicine still remains. As Dr. Osler says: "Heroic dosing for several generations has given man's tissues a thirst for drugs." He

further adds: "It is really one of the most serious difficulties with which the practitioner has to contend. Even in minor ailments, which would yield to dieting or to simple home remedies, the doctor's visit is not thought to be complete without the prescription." In recalling my medical school days I can see whole rows of indifferent students dozing through a most interesting lecture, and only arousing themselves near the close of the hour to take down the receipts for treatment—as if this were the only matter of importance.

Thanks to the progress of science the cause of disease is now receiving the most earnest attention from medical students. Although pharmacists and mountebanks are still trading upon the innocent credulity of a gullible public, and the conscientious physician is seeing many a fee slip from his hands—this condition will not maintain for long. As the public become more enlightened and medical men get more sense (again quoting from Dr. Osler), dosing will be recognized as a very minor function in the practice of medicine in comparison with the old measures of Asclepiades. In every community there will always be those who are ready to profit at the expense of the weak, the erring and the ignorant. In the philosophy of some, this is a part of nature's divined dispensation. There will always be others, however, who feel it their duty to strengthen the weak, help the unfortunate, and to prevent sickness, suffering and misery whenever and wherever it is possible. The prevention of disease should be the highest aim of medical science. In order to realize this high ideal it is not only necessary to know the origin and nature of disease, but to know intimately the man, woman or child to be treated. In knowledge of human nature the ignorant quack often surpasses the learned physician. The pharmacist and druggist are now feeding fat the ancient belief that there is a specific medicine for every disease. The osteopaths, under a new name, now that massage has fallen into bad repute, are vigorously working the old claim for thumping and rubbing that primitive tribesmen have applied for centuries. The Christian Scientists have adopted a method which is neither Christian nor scientific but they have adopted a name for their method which arouses hope, faith and expectancy on the part of

the patient, and these are the most powerful adjuvants that man can use for his upbuilding. But these are the same mental agencies or psychic factors which every physician hopes to arouse when he shows his medical diploma, establishes his reputation as a specialist, or gives a simple prescription for treatment. Is it not time for the medical profession to take the public into its confidence, to admit the impossibility of curing disease as such, and to ask for their sympathetic aid and coöperation in trying to prevent it. The recent discoveries of medical science as to the germinal origin of disease, and the self-limitation of most diseases provided the individual has sufficient power to resist them, have placed new duties and responsibilities upon the medical profession. The conscientious, self-respecting physician can no longer sit supinely in his office and wait for the onslaught of an epidemic which timely advice from him may avert. Nor can he fulfil his duty as a family physician by always waiting until he is summoned before proffering his counsel and his services. In making this statement I am aware that I am treading on very delicate ground, as the ethics of the profession forbid a physician from taking the initiative in giving advice or in treating patients.

When the community once learns that the physician's advice before sickness is often worth much more than his prescription afterwards, they will not be slow to come into more intimate relations with him. How to bring about this new relationship between the family and the physician is the difficult problem. It is very evident that both will have to be educated up to their new responsibilities. The physician of the future must be prepared to add to his duties the function of the teacher, the preacher and the curate—as well as guide, philosopher and friend to all those who need his services. As a specialist he must be prepared to assume the rôle of medical examiner, inspector or director in various institutions and be at once a sanitary and biological engineer. Every child in the public schools should be given a thorough physical examination at least once a year, and this work should be done by physicians who are trained to this service and who know the significance of the physical signs presented, etc. If a child is not worth examining he is not worth educating.

In the opinion of the best authorities on education the child should be advanced or retarded or given special attention, according to the results of the medical and physical examinations. This yearly examination should be followed up by the daily inspection of trained observers acting under the direction of some practising physician. This practice now being carried on in New York and some other cities is being followed by a remarkable exemption from the contagious diseases among the school children. The examination and inspection now in practice in some of the public schools and colleges should be extended to factories, department stores and the great manufacturing establishments where a large number of persons are employed. Many of these concerns already have their daily attending physicians whose business it is to inspect the sanitary condition of the buildings and to look after the health and comfort of the employees. Public dispensaries should be established, where more advice and less medicine is given to poor patients. These institutions, and the schoolhouses, churches, clubs, Christian Associations, fire engine houses, police stations and municipal gymnasiums form natural centers where physicians may give practical talks on "The First Aid to the Injured," "Home Sanitation," "Social Purity," "Temperance" and a great variety of health topics for which the great public are hungering for judicious information and advice. These practical talks may be supplemented by the publication of little booklets on the care of the health which I assure you find an appreciative community waiting for them. The remarkable success of the Health Education League, which was started in Boston only a year and a half ago, indicates the possibilities for such a movement in other cities. The object of this society, as the prospectus announces, "is to spread the knowledge of the laws of health among the people through the circulation of a scientific and yet popular health literature, also through suitable lectures and practical talks given by competent persons in schools, churches, clubs and other existing institutions, on the following and kindred topics: 'The Causes of Disease and Their Prevention,' 'Warming and Ventilating,' 'Cleanliness,' 'The Selection and Preparation of Food,' 'Rational Exercise,' 'Sleep,' 'Rest,' 'Recreation,' etc. Up to the pres-

ent time the Health Education League has issued booklets on 'Hints for Health in Hot Weather,' 'Milk,' 'Colds and their Prevention,' 'Meat and Drink,' 'Healthful Homes,' 'The Successful Woman,' 'The Boy and the Cigarette,' and 'The Care of Little Children.' These booklets are all designed to meet special wants or conditions in the community. They are prepared gratuitously by medical experts, and sold at a nominal cost to those who are able to pay for them, and given to those who are not. Over 70,000 of these booklets have been distributed to various institutions in different parts of the country since last year. I may add that the expenses of this society, including the salary of the secretary, are met by private donations from philanthropic men and women who believe in health education. I can not help thinking that it is through the efforts of such societies as I have described, that the public are to be educated to appreciate the prophylactic services of the physician. My personal efforts for the past thirty years have been spent largely in this direction. The success with which I have met and the success of the men who have followed similar methods, are largely attributable to the growing intelligence of the community as to the proper means of preserving the health. I have given no medicine and the most valuable service that I have rendered has been in getting my patients to give up the things that have made them ill, and establish as far as possible correct habits of living. The reply which I have heard most frequently to such simple advice in matters of personal hygiene as I have proffered in my professional work is this: "Why didn't my family physician tell me that?" To my mind this is an indication that the patient is usually ready for advice on hygiene, whenever the physician is willing to give it. But is the patient ready and willing to pay for it? Here is the rub. Patients have become so accustomed to receive something that they can take away in a bottle and sip with a spoon, that they are very loath to pay for anything that they get from a doctor unless they have tangible evidence of it. Advice is cheap, especially if it is contrary to our wishes. This view of the matter is being gradually and can be entirely overcome. A person goes to a lawyer for legal advice and expects to pay for it. Many business corporations

and firms, and some individuals, retain lawyers to advise them concerning legal matters and to keep them out of legal complications. The dentist spends the greater part of his time in filling teeth in order to prevent their further deterioration and decay. The pastor or curate, which word originally meant cure or care of souls, goes from house to house and inquires as to the spiritual welfare of the different members of his flock, and advises them as to their soul's health or holiness. If the pastor does not make his regular monthly or seasonal call, some of the parishioners are dissatisfied and feel that they are not getting their share of the pastor's services. But then the pastor is not paid by the individual parishioners by the call or visit but by the congregation collectively for the year.

In the light of our present-day knowledge as to the cause of moral, mental and physical disease, there is a much greater necessity for the physician to make periodic professional calls upon his neighbors and patients than for the pastor to do so. Before the physician may assume this function, however, the public must realize the general as well as the personal value of preventive medicine and make it possible for him to practise it, by giving him an assured income. When once the way is provided by the community or the family, the duty of the physician in regard to the proper mental and physical development of the children under his care becomes very plain. His first duty would be to break the bounds of "indecent prudery" and talk in a common sense way to prospective fathers and mothers as to the desirability of their making themselves physically fit to rear a family. This talk should be followed up by a few practical talks on pelvic anatomy and sexual hygiene, dwelling upon the importance of separate beds, temperance, cleanliness, etc. If persons anticipating marriage are known to the physician to be mentally and physically, or temperamentally unfitted for each other, they should be apprised of this fact in the most delicate way possible. A little common sense advice from the family physicians on sexual matters would relieve the gynecologists from overwork, put the divorce courts out of business and prevent untold misery to thousands. As soon as the first infant arrives the physician should

give the most minute instruction as to its care. Insist first of all upon the mother nursing the child if it is a possible thing. In its first few months' struggle for life the child has a right to be nursed at the breast. One of the most eminent English physicians of to-day well says, "the whole future health and welfare of a person is often determined within the first few weeks of his or her life." If the mother can not nurse her child, then use cow's milk modified so that it will be as near like woman's milk as it is possible to make it. The most judicious attention should be paid to food, cleanliness, clothing, fresh air, sleep and exercise during the first year of the child's life. More than half the children born die in infancy from lack of proper care. As soon as the child begins to walk he should be dressed so as to allow him perfect freedom of movement in trunk and limbs. Preferably, a child should have a special room or at least a pen by himself, from which everything breakable or of an objectionable nature has been removed. He should then be taught not to put everything he touches into his mouth, and be left as much freedom to roam and climb about his pen as possible. His self-activity is the beginning of his mental and physical education. All through the first seven or eight years of the child's life the physician should see that everything is done to enhance his growth and development through his natural activity. Keep him under the most favorable environment as to fresh air and sunshine. Do not submit him to the confinement of the schoolroom until he is at least eight years of age—but let him be brought in contact with natural things like animals, trees, plants, etc., of every description. Let all of his reading and writing be concerning these things which he sees, hears and touches. Do not have his attention confined to anything but a few minutes at a time. Encourage him to play whenever he feels a desire to do so, but do not coerce him to play games regulated according to your own taste. As popular as plays and games are among children, the expression which one hears most frequently coming from them is "let's play something else." This is certainly an indication of the need among children for a frequent change of organic activity. Most persons think that when a child is sitting still in the schoolroom that he is at least resting his muscles,

though his brain may be active. But in reality when maintaining a sitting or upright posture he is subjecting certain groups of muscles to more or less prolonged tension. In order to relieve this tension the child's first impulse is to change his position, and this during his wakeful hours a normal healthy child is almost continually doing. If he is deprived of the opportunity of changing his position, then his body begins slowly to adapt itself to the school desk and seat, and we have the beginning of the flat chest, drooping head, rounded shoulders, crooked spine and other postural defects with which the gymnasium teacher and the orthopedic surgeon are so familiar. Woe to the boy or girl who becomes passionately absorbed in books during the formative period of his or her life. In order to guard against the acquirement of these school furniture deformities the children should be frequently examined or inspected by the family physician. He should have at his command tables of the height, weight and other measurements of the normal boy and girl for different ages. Instead of always looking for signs and symptoms of disease, he should have opportunities enough searching for health to know it when he sees it. As the age of puberty approaches, the physician should talk to the children concerning the mysteries of the generative functions. A very proper and natural way to approach this subject is through the nature studies of plants and animals. Up to the age of puberty the mental and physical activities of the boy and girl should be the same. They should be encouraged to run, romp, jump, climb, skate, swim and dance together without being continually reminded of sex distinctions. After puberty is established much of the mental and physical activity of the two sexes should be essentially different. At this time the girl begins to take on changes in form as well as changes in function that render it undesirable and in some cases impossible for her to attempt to compete with the boy in any form of work or sport requiring vigorous muscular effort. If she makes the attempt she may succeed for a while, but she will do it at the expense of her own organism and consequently at the expense of the race. The question of venereal diseases is one concerning which the family physician should talk very plainly to both sexes. The baneful

effect of even the simplest of the private disorders, how it is contracted and the serious consequences that may follow such an affection, should be clearly set forth. Here the innocent as well as the guilty are frequently made to suffer, and no chances for inoculation should be taken through ignorance. Physical exercise, cleanliness, circumcision among the males, abstinence from stimulants and a plain, simple diet, undoubtedly tend to allay sexual irritability, and moderate the sexual passions. Athletic sports, when properly conducted, serve to give a legitimate outlet to the animal spirits of the players, but when they become savage and brutal it is a serious question if they do not tend to arouse the latent animalism of the spectators. The family physician should never weary of talking to growing youth about the ideals to be kept in mind in practising athletics. If victory is the only object, then in too many cases, the training or habits of right living are given over as soon as the victory is won. If, on the other hand, physical perfection, the increase of functional power, and fitness for service, are constantly upheld as the highest ideals, there need be little fear that the boy who has imbibed this kind of preaching will waste his energies in secret vice or dissipation. There is not a little danger, however, that the mad furor for success in athletics, which just at present is dominating the youthful mind of the country, may be followed by more or less serious consequences. As the heart, lungs, liver, kidneys and spleen do not attain their full development until after the twentieth year, there is every probability of these vital parts being greatly overtaxed in many of our youth if the strain and tension of competitive athletics are to be carried into the public schools of the country without medical supervision. Developmental impairments and injuries will be exceedingly likely to occur if girls as well as boys are drawn into this athletic maelstrom. Believing, as I trust we all do, in the beneficial effect of physical activity as an aid to mental and moral as well as physical development, I think that it is extremely important that the medical profession take a judicial stand in regard to the treatment of this subject. I do not know of any better way for the family physician to get into sympathetic touch with parents and children, than to discuss

with them, calmly and judiciously, the question of school athletics. The moment you are launched upon this subject from the physician's point of view, the whole question of growth and development, public, domestic and personal hygiene, sanitation, preventive medicine and a host of sub-topics are opened up to appreciative listeners, and good results will follow as a matter of course.

III.

THE TRAINING OF THE MENTALLY AND MORALLY DEFECTIVE CHILD.¹

BY MAXIMILIAN P. E. GROSZMANN, Pd.D., Plainfield, N. J.

In discussing the training of the mentally and morally defective child, I desire to make a preliminary distinction. I am not personally much interested in children whose defects make them mentally more or less imbeciles, and predestine them, morally, to be criminals. It is not my intention here to argue the problem whether there are born criminals or not. But certainly there are such whose mental and moral defects are so grave that they can never be self-supporting and trustworthy members of society. In their case life-long segregation is mandatory, and it is in the interest of social health and preservation that they be prevented from propagating their kind.

My subject refers to that class of children whose defects are less grave in character, and who are, therefore, trainable. Here again a number of different classes can be distinguished, and it has been one of my cherished hopes to be able to suggest at least a tentative classification. But whatever classes we may distinguish, in all these cases there is a sufficient basis on which to work educationally. In other words, the defects are of a kind that will allow of mitigation, or even elimination. In the short time which is at my disposal, I can only briefly touch upon some of the conditions of this training, by referring to some of the causes and conditions of the defects. I only wish to say by way of parenthesis, that for the group of children that are nearest to my own work and observation, I have suggested the term "atypical." And I will say that in all instances, curable defects have a foundation in the structural elements of the body. The training of defective children is therefore a task in which physician and educator must share, and it is a source of sincere gratification to all that the necessity of this coöperation, for which I have been pleading for a good many years, has now found recognition in the program of this great body of representative physicians.

¹ Read by invitation at the 31st Annual Meeting of the American Academy of Medicine, Boston, June 4th, 1906.

Again, I will not enter into a discussion of the hereditary or environmental character of these causes. Be they one or the other, it will in all cases suggest itself that the environment of these children be so adjusted that only healthful, correcting influences will operate on them. Often, they will have to be removed, for a shorter or longer period of time, from the parental environment where possible hereditary causes may be emphasized by environmental conditions, and placed in a new environment which is adapted to their educational needs.

The deviation from normal function in these children may be produced by various causes, and the treatment will naturally consist in first, trying to remove, or, at least, weaken, these causes, and second, removing their effects as far as it is in our power. In some instances, the cure will be almost instantaneous. Thus, when specific sense organs are affected the only thing necessary is to cure those defects, provided they are curable. Some time ago, I have been credited with saying that the fitting of glasses to a child may prove to be a cure for a bad temper, and that the best cure for lying is an improvement of the digestion. You may take this assertion with as many grains of salt as you please. Nevertheless, it has been shown that eye defects of various kinds, nasal troubles, catarrhs, also of the stomach, adenoid vegetations, etc., are a frequent source of mental and moral derangements, even of epilepsy, neurasthenia, and similar disturbances.

"It is rarely the case," says Dr. Edgar J. Swift, in "Some Causes of Reflex Neuroses in Children," "that central derangement, which manifests itself in functional disease, is fundamental. It is the result of continued peripheral irritation and can be checked or cured by the removal of the exciting cause. Teachers should understand that unwillingness to study and a decided preference for mischievousness do not necessarily mean that a child is the incarnation of original sin or that he is possessed of the devil. The devil may be cast out by correcting the child's hyperopia."

Dr. Hubert Richardson, a pathologist connected with the Mount Hope Retreat, Maryland, finds among the potent causes

of outspoken feeble-mindedness, disturbances of circulation. "It is quite evident that unless the brain has sufficient nourishment it cannot develop." He found even in average children many cases where there was a want of tonicity. "The flesh is flabby, the blood pressure is low, the blood is not up to the standard, and the heart fails to do the necessary pumping. The whole matter of driving the blood to the brain depends on the contraction of the vaso-motor system. Every motion, every physical exertion, rests on the blood pressure. You can, with proper instruments, find the difference in blood pressure as the result of outward stimulus. Sometimes certain nerves fail to react and then you have sluggishness of circulation and the necessary result in the development of the brain. You find that in the case of the insane if you stimulate the circulation the mental power is sometimes increased without anything more." Dr. Richardson is very hopeful in regard to the improvement of many cases through proper mental treatment in conjunction with medical and physical training.

This observation suggests the paramount importance of systematic physical regimen in the treatment of all atypical cases, for we have here the same fundamental conditions, on a smaller scale. There is a lack of tonicity, often either nervous exhaustion, or overstimulation and irritability, and the consequent disturbances in the respiratory and circulatory functions. The automatic functions of the body are irregular, and the rapidly changing tonic condition of the body reflects itself unchecked in the mental and emotional life of these children whose lack of self-control is markedly inferior to that of the ordinary child. Some of these children are in continuous motion without any definite end of their muscular activity. Others again will lapse into apathetic and dreamy states, resembling ordinary laziness, when it really is nothing of the kind.

It is a well-known fact that backwardness in children may sometimes be cured by fitting glasses to myopic or hypermetropic eyes, or by removing adenoid obstructions from the nasal passages. It is a curious fact that all, or almost all, of the atypical children who have come under my observation, have had trouble with

these unwelcome growths which, of course, indicate, in a measure, difficulties in the circulation, and lack of proper nutrition, perhaps in infancy, or even before birth. Many suffer from cold feet or general chilliness. Here again, measures are indicated which will improve the circulation as well as the nutrition generally. A general tonic treatment, regulation of the diet, stimulating baths, and exercise in the open air, will do wonders. Let us be clear about the fact that an improvement of the tonicity of the body will decidedly and quickly improve the tone of the child's mentality.

Let us further be reminded that in the regulation of the physical training of the atypical child no general directions can be given. Everything will depend upon the individual case we have in hand. We may, however, mention a few general principles for our guidance in the government of these cases.

Great care must be taken neither to overtax a child by too hard or too sustained work, nor to underexercise him. We must insist upon strenuous effort within the individual limits of fatigue. On the whole, it is well to remember that an atypical child, even one which is merely nervous, cannot sustain his attention and effort very long without detriment to his vitality. Varied exercises, such as contain the element of interest and joyfulness, will most surely enlist the child's willing coöperation and effort.

There are cases where specific movements, so-called "physiological" movements, are necessary. Likewise, there are passive exercises, like massage, and resistance exercises, which are valuable. All these answer specific curative purposes.

But these exercises are like taking medicine in case of illness. Therapeutics nowadays does not mean merely the administration of medicine and drugs. It includes the toning up of the entire constitution by bringing the entire nervous system into play, so to speak.

The value of motor training in improving the condition of the nervous system in general and of the state of mentality in particular is becoming more and more recognized. A majority of the nerve centers in the brain are motor centers, that is, centers for the control of movement, and some psychologists have drawn the

conclusion that there is no emotion, no thought, without some form of motor concomitant, which, in turn, may stimulate the emotion and the thinking. This is the principal basis upon which rests the influence of rational manual training upon the development of the mind, and of clear conception. Let us understand that every movement of the body is dependent upon the nervous control; that a sensory impression must first reach the brain, there to be transformed into a motor stimulus with consequent direction and coördination of the outgoing nerve force. The average person hardly realizes how complicated even the most simple-looking movements of the body are: how much coördination and association of conception and direction they imply. The defective child, especially the one which represents the type of arrested development, gives us an opportunity to observe how many simple elements are actually combined in producing, for example, the bending of the arm, the spreading and closing of the fingers, etc. The ordinary child learns these movements by early and unconscious imitation and absorption in infancy and early childhood. The tardily developing child often must make a conscious effort to master them, and it is interesting to note how this conscious effort forms an obstruction in the child's mind. It is therefore desirable to establish as far as possible conditions similar to those under which the ordinary child absorbs these movements. Formal exercises, necessary as they are, are not the best agencies for this training. Plays and games, well selected and directed, where there is a great deal of joyous inspiration, imitation, and emulation, answer the purpose very much better. Games, and especially outdoor games, are one of the best means of arousing and training defective children. And in connection with these, we must consider a wide range of suitable occupations in the open air. Mention has already been made of the value of manual training in this education. Even with ordinary children we must take care not to introduce delicate work, such as demands fine and exact coördination of nerve and muscle control, at too early a stage. Defective children will remain much longer in the stage where the larger movements of the body, requiring but little coördinate control, are eminently

preferable. Thus basket-weaving is preferable to sewing. But it is especially the outdoor exercises, gardening, mowing grass, a little carpentering, etc., which will develop their control and mentality. There is physical training of the most valuable sort in digging up a garden bed, in wielding a mattock, or an axe; and the coördinated movement required by piling up a cord of wood will be found of extreme developmental importance. In the house, there is a great deal of housework to be done which will benefit the child's development. Making a bed is better exercise for a defective child than the mastery of a straight line in drawing. In this age of the typewriter I have asked myself whether there is really so much virtue in forcing a child to learn to write. At least the atypical, the nervous child, is subjected to quite a nervous strain in manipulating pencil or pen, and in making the combinations of curves, hooks, and flourishes which constitute the letters of our alphabet. This explains the cramped, scribbling hand we observe in these children and their dislike for written work. I am now making some experiments to test the value of introducing the typewriter, as a substitute, as far as feasible, for ordinary writing.

Exercises of larger muscular radius, such as I have been endeavoring to suggest, also stimulate the respiratory organs. They require deeper breathing, rhythmical swing. This is another point of particular interest in the treatment of these children. Owing, perhaps, to irregular nerve control, all their automatic rhythmical functions, such as breathing, walking, etc., are apt to be more or less irregular. Defective children are often lacking in the sense of rhythm. They are perhaps musical, or love music, but in the performance of musical rhythm, or of rhythmical movements generally, they are found to be wanting, the more so, of course, the more complicated the movements become. May there be, perhaps, a connection between this fact and the other well-known fact that the musical productions of peoples of inferior mentality, like the negroes, or the North American Indians; or those of a peculiarly nervous temperament, like the Slavic races of Europe, Russians, Poles, Hungarians, etc., offer melodies of strangely irregular rhythm? Between the inspiring airs of the

czardas, of the pusztas, and the rag-time of the modern popular music, there may be a wide gap; and yet, the student of race psychology may find in both an approach towards the non-rhythmical peculiarity of atypical children.

It suggests itself then, to lay a great deal of stress upon rhythmical movements in the training of these children. Free movements, dumb-bell and wand exercises, and the like, calisthenics in its widest sense, will be found very helpful, much more so than apparatus work which is of comparatively secondary importance here.

An amplification of these rhythmical exercises, with increased and variegated coördination and association, is found in tactic exercises, marching and grouping, developed further into dancing steps, and group and square dances. Here, the individual will, even more than in mere calisthenic exercises, learn to appreciate his relation to other individuals in a social group. The unit subordinates itself to the community of which it is an integral part. This means higher associations still, and an increasing amount of self-control. And these coördinations are suggested to the child in a manner which will arouse his intense interest and ambition. They contribute in a most effective manner to the development of that highest form of self-control which permeates the entire body and system of the individual, and may be termed as poise,—poise which is not merely bodily, but also mental. Unless there is within the individual the feeling of rhythm, harmony and balance, there can be no proper adjustment to the environment. There is such a thing as emotional poise, moral poise, social poise, and these grow out of the bodily equipoise, in a large measure. This poise is conspicuously absent in atypical children, a want which is not merely a temporary childish defect, but a continuous symptomatic characteristic.

These exercises will assist the child in the formation of proper habits of action. They will help to quicken the reaction time of the child with sluggish mentality and attention, by forcing it to respond instantly to commands and coördinated impulses. On the other hand, they will train children whose reaction is over-quick, who are irregular and fidgety in their movements, who are

in a state of more or less constant strain and tension, to check their nervous impulsiveness by rhythmic, concentrated attention. Lack of concentrated attention, listlessness, scatter-brainedness, inertia, are among the most pronounced faults of the general run of defective children. Even the brightest child of nervous temperament, the child whose genius will eventually transcend all bounds, lacks the well-poised attention and application which is the highest aim of educational effort. It is from the ranks of the atypical children that the erratic, eccentric, irrational, irresponsible, more or less unbalanced individuals are recruited, whom we meet with so often in daily life, and who might have become considerably steadier and more effective members of society had they received the proper training which they required, in early childhood.

You will observe that I have in this paper laid stress almost exclusively upon motor exercise. I have done so because this is, educationally as well as historically, in the development of the racial instincts and impulses, the foundation upon which the entire mental and moral superstructure rests. It is entirely unnecessary to state expressly that, in the matter of instruction, objective methods, psychologically adjusted also in the daily program to the needs of each individual child, must be employed; and that in the matter of discipline, firmness and gentleness must combine to produce in the child a wholesome growth of moral habits and principles. A moral life is, at least in its lower terms, largely a matter of well-regulated habits of action and reaction. Of what the child does not possess the potentiality, of course, cannot be accomplished, but the secret of training the mentally and morally defective child consists merely in understanding his individual case, that is to say, the causes and conditions of his individual defects, trying to take him on his own terms, and to develop him within his own limits, stimulating the weak powers for good he has, so that they grow into proper habits of action, crowding out, as it were, the lower impulses. In other words, it is a process of elimination and substitution, and of concentrating the child's attention upon higher motives.

But after all, you cannot expect to train the attention unless you enlist the active interest of the child. Power of attention is

practically identical with the power of self-direction, of voluntary effort, of will-power. But you cannot give to anybody the will to do. You may give him the physical strength and nerve power which will form the foundation and prerequisite of voluntary effort, and without which effort and the psychologic development generally, would lack their physiologic substratum and counterpart; but you cannot supply the will itself. That must come from within the child's own soul. All you can do is to supply the motive power for the exercise of voluntary effort. And the most effective agents for the production of this motive power are interest and joy. There is no action without an emotion which is first in the heart and which releases the motion. Joyful exercises incite growth. Joyful exercises inspire the child with self-confidence so that he will overcome his morbid fear and shyness. Many atypical children have fallen behind the others not from inherent mental weakness but from a morbid self-consciousness and timidity. Not that you should be sentimental and gushing in your joyful efforts. A little wholesome sternness and rigor will serve as an effective tonic for the torpid minds and wills you have occasionally to deal with. But all efforts must concentrate on giving the child, after all, confidence in his own ability, and the desire for self-development. Then, you will have won the victory. Make the child believe in himself, modestly, to be sure, but also unhesitatingly. Nay, more: you yourself must believe in the child, in each child, even in the most defective child, even in the most distressing case of perverse mentality you may come across. Believe that in every one, very rare cases excepted, there is a spark which you can fan into a flame, that there is a mind you can develop—between narrow limits, perhaps, but far beyond its present misery. And remember that among the children who appear to the ordinary observer very puzzling problems indeed, there may be souls sadly misunderstood, hearts much in need of sympathy, and minds unfortunately neglected, in bodies, whose possibilities never have been fully discovered—children who never have had their chance. And when you have considered all this, and made up your mind that here is a wonderful field for educational activity of the right sort, then apply yourself to it with the spirit of self-renunciation.

IV.

THE SANITARY REGULATION OF THE SCHOOL-ROOM WITH REFERENCE TO VISION.

By CASEY A. WOOD, M.D., D.C.L., Chicago.

Some time ago while in the company of a few educators the conversation turned upon the equipment of lower-grade public schools. I was at the time rather impressed with the fact that what I regarded as essentials in the arrangement of the school-room were either ignored or the reasons for them imperfectly understood. When, therefore, the chairman of the Program Committee invited me to address you it occurred to me that a restatement of the axioms of visual hygiene—or rather my conception of them—might not be out of place. I might add that several years ago I made a study of the subject of school lighting while investigating the problems of the illumination of large buildings in the city of Chicago. This is my apology for repeating what, to most of you, must be a twice-told tale.

If the ocular apparatus of the average child were by nature adapted to the amount and kind of eye work that he is ordinarily called upon to do, it would not be so necessary for us, as physicians, to consider, as we often do, the details of school hygiene. In spite of the fact that the eyes are the organs, above all others, that are called upon to labor excessively in the effort to obtain an education they would cause us little or no anxiety if there were any provision in them for an unusual amount of accommodative effort—for excessive focusing for near work in particular. In the great majority of cases the opposite is true. We are all of us born far-sighted, *i. e.*, with the vision and visual apparatus of our savage ancestors, and with these eyes we deliberately proceed to the school work that civilization demands, which, for its easy accomplishment, necessitates quite a different type of eye, *viz.*, the short-sighted or myopic globe with an oculo-muscular system in correspondence with it. Happily, quite a few of us run the gauntlet of these dangers to our nervous and digestive apparatus and to our sense organs with little or no damage, but some of us

experience ills from which we recover either partially or not at all.

In estimating the value of sanitary precautions in the regulation of the average school-room it must be remembered that a respectable percentage of children begin their school life with congenitally defective eyes. Quite apart from the treatment of this aspect of school life, which I do not propose to discuss here, it follows that any help afforded the merely far-sighted pupil in easing the burden of his eye-strain is of manifold greater assistance to the boy or girl who assumes the tasks of study with astigmatic, diseased or organically defective eyeballs.

Even if the eyes of every school child were, as they ought to be, carefully examined every year for the purpose of detecting and treating all errors of refraction, all defects in accommodation and all anomalies of oculo-muscular balance there would still remain many who, from incurable or only partially curable eye defects, need every possible aid to comfortable vision that can be given them.

It must also be borne in mind that there are numerous diseases of the other sense organs as well as of the system generally that, neglected or incapable of cure, reduce the effectiveness of the visual function. Even where the eyes are comparatively free of congenital defects or active disease, ineffective digestion (due to poor food or other cause) acquired or hereditary diseases of many sorts, obstructed breathing, imperfect mental development, etc., not uncommonly serve to weaken one or more parts of the visual mechanism and the child so affected is unable to continue his studies.

It is, consequently, not alone for the sake of preserving the eye-sight of the ordinary healthy pupil that hygienic precautions are of supreme value in the school-room, but that we may not add to other considerable burdens the serious drawback of eye-strain.

In considering a few of these questions let me say that although the discussion of them has been going on since the early days of public education, they still present ever-new, because ever-changing, aspects, and this fact is another justification I offer for presenting them to you once more.

The Illumination of the School-room.—This is the oldest of the questions relating to the hygiene of school vision. It seems strange that, although one of the simplest and most easily applied of the rules of school sanitation has been known for many years, it is so often overlooked. I refer to the *dictum* of Risley (a former president of this Academy) that at any hour of the day in any season of the year it should be possible to read the finest (diamond) print in any part of the school-room. If this can be done the illumination is *sufficient*. It may, of course, be *excessive* (too strong light may be admitted to the school or the artificial illumination may be unduly concentrated) or even too variable, but these are not the usual faults. Speaking for Chicago, I believe that, considering the rapid growth of the city and the constantly increasing demands upon us for school space, our school board has done wonders, yet there are many school-rooms in which pupils and teachers strain their eyes, worry their nervous systems, upset their digestive apparatus and contribute to other forms of mental and physical distress by attempting to see by insufficient or improper illumination.

I do not, of course, say that in a crowded city with its atmosphere befouled with smoke it is always possible to secure, especially during the winter, an ideal illumination, but the continual agitation of this important matter has enabled us to obtain better built and better lighted schoolhouses. Largely due to this cause is the decent light in our public schools as compared with the generally wretched illumination of our federal, state and municipal buildings. Everybody, even the proverbial school-boy, knows that in the construction of the schoolhouse the distance that separates it from surrounding buildings should be at least twice their height and that the window space of the exterior walls having a northern or western exposure should be quite one-fourth the floor space, although it may be only one-fifth of the floor area when the school-room has an unobstructed southern or eastern exposure. Of course, I need not say that the application of this rule must be somewhat modified, as in the case of all rules, by individual instances. In small rooms with a generally clear atmosphere or where the school-buildings can be elevated well

above their surroundings, a smaller proportion of window space may be allowed.

During winter or where, as in some localities, it is a question of artificial lighting or no school at all, the respective merits of kerosene, gas, electricity, and the various forms of lamps are often discussed. I have had occasion to say, in this connection, and I repeat it here, that as a choice of evils I would prefer to have the pupil take an indefinite holiday than allow him to be immured during school hours in some of the educational dungeons that I have known to masquerade as recitation and study rooms. I need not enlarge upon the physical, moral and mental ills that come to children that are forced to study or even to sit all day in a badly ventilated, artificially lighted, interior school-room. Better a healthy street arab than a short-sighted, anemic, neurasthenic schoolboy.

If artificial lighting is unavoidable, the same law that governs the employment of sunlight should ever be borne in mind; *the illumination should resemble as nearly as possible diffuse sunlight; it should be sufficient to permit diamond print to be easily read in any part of the room, and it should shine upon the work to be done and not, either directly or by reflection, into the eyes of the pupils.* After all is said and done, if the lighting, natural and artificial, of all school-rooms realized these standards we would have few excessively myopic pupils and fewer nervous symptoms to treat among our child population.

Owing to recent improvement in electric lamps, to the fact that the electric light does not to any extent overheat or vitiate the atmosphere of the school-room, to the diminished danger of fire, and to its greater convenience, it is generally to be preferred to gas or kerosene. It is, however, capable of greater harm to the vision and is much more likely to produce eye-strain unless judiciously arranged. As a general rule I prefer a sufficient number of 32 candle-power lamps placed, in ground glass globes, near the ceiling. The dazzling, uncertain, flickering arc-lights, with their irritating violet rays, should never be used for school lighting or, in my judgment, for any illuminating purpose when close work is to be done.

That the sunlight should not shine into the eyes of the school children requires a proper arrangement of the seats, desks and blackboards. Of course, this important detail in school-house building should receive the careful attention of the architect, but it can generally be satisfactorily arranged, it matters not what exposure the school-rooms may have.

Inasmuch as the great majority of pupils are right-handed, the rays of light from whatever source of illumination should fall from the left or from the left and rear, upon the desk, book, writing pads, etc., in near work, and from the rear, or obliquely, upon blackboards, maps, wall diagrams, or other objects required to be looked at by pupils from distant parts of the room. If windows are upon the right side of the room they should, as in artificial lighting, be placed as near the ceiling as possible. It must be remembered that the eyes require *sufficient*, as well as *proper*, illumination to do, without strain, the work of ocular fixation. As Risley points out, these supplementary windows may, in summer, be used for ventilating purposes. He also suggests that where for any reason there is not sufficient sunlight admitted to a room, a second sash may be adjusted to each window on the left, which, when dropped to an angle of 35° or 40° , will act as a reflector and throw the light from the sky upon the desks of the pupils. I have myself seen such a device employed for directing the sun's rays upon a white ceiling and then by secondary reflection upon the objects in the room below. In this way the sun's rays were sufficiently diffused to render them effective and not irritating to the eyes.

While on this subject I am, of course, distinctly opposed to such means as Luxfer prisms for school lighting, valuable as these devices undoubtedly are in illuminating basements and other dark rooms of our city buildings, particularly. All school-rooms in which pupils are expected to use their eyes to any extent should be properly lighted, *outside* rooms—for many reasons besides the fact that they are necessary for the ocular well-being of the children. Indeed, in the ideal school-building the rooms in which the pupils spend most of their time should have a south or southeastern exposure. Excessive sunshine could be regulated

by double screens—the one semi-opaque and colored light green for bright summer days, and the other cream or light gray for the less dazzling though direct sunshine of winter. If this were done recitations and other occasional tasks could be worked out in rooms on the opposite side of the building.

The Tinting of the Walls.—Although much has been written on this subject and although the rules for successful mural coloration are easily remembered, there still exists some confusion in the minds of many educators regarding this important matter. As before stated the ocular apparatus is adjusted (especially during such near work as reading, writing, drawing, etc.) for diffused sunlight, and the wall tints should be chosen in view of that fact. Each school-room should be considered by itself. If it be situated above the ground floor, have a southern exposure, face a wide street or other large space, and particularly if there be no tall building to shut out the sunlight, the color chosen may be a light green, dull gray, or even a deep orange relieved by a lighter ceiling tint of the same color-mixture. On the other hand, the walls and especially the ceiling of a recitation or study room with a northern exposure, especially if the window space be insufficient or the view obstructed, should be papered or painted a light buff or, better still, dull white. To assist in lighting up such a room the walls should be regarded as reflecting surfaces and ought not to be unnecessarily covered with maps, diagrams, pictures, blackboards or figured wall papers. Where it is possible, dull paints on a smooth surface are preferable for use in such a room to burlap, calcimine, or wall paper.

A wider choice may be allowed in rooms and halls with a bright, southern exposure; indeed, if for this reason alone it is a pity that *all* school-rooms cannot have either a south, a southeast, or an eastern outlook; it would permit of almost unlimited color schemes and mural decorations. Between the brightest southern exposure and the most obstructed northern view, we may then say that the mural colors should be chosen to suit the individual case. As you are aware, there are several photometric schemes devised to reduce color schemes in school-rooms to a scientific certainty, but practically all that one needs to remember is comprised in the foregoing considerations.

Reading Matter.—The size of the letters, the style of the type, the width of the printed columns, the spacing of the words and lines, the color and texture of the paper used in the make-up of school books are all important factors in the prevention of eye-strain and ought to receive more attention than they generally do. Without entering too deeply into these subjects I believe that the rules laid down by Cohn ought to be followed. He advises that the height of letters like *n* be not less than 1.5 and the down strokes be at least one-fourth of a millimeter thick and that the vertical distance between the lines be not less than 2.5 mm.

Inasmuch as the strain upon the eye muscles, both internal and external, is in direct proportion to the length of the lines he suggests that the columns of reading matter never exceed 10 cm. Furthermore, as ocular fatigue is, other things being equal, more easily brought about in younger children than in those more advanced in years, these measurements should be increased for those of tender years. Edward Shaw proposes that for the first year in school the type should be 2.60 mm. high and the leading 4.5 mm.; for the second and third years the height ought to be at least 2 mm., with leading of 4 mm. For the fourth and subsequent years 1.8 and 3.6 mm. respectively. Considering the unavoidable variations in school-lighting, I do not consider these figures unwarrantable.

A great deal of discussion and much difference of opinion is held as to the proper texture and color of paper in school-books, but I do not think we shall be far wrong if we insist on a dull white paper printed with jet black ink. Likewise, the copy-books, pads of paper used in school exercises, in the practice of handwriting and as substitutes for greasy, dirty slates (now happily things of the past) should be a "dead" white, the ink deep black and the lead pencils as black as they can be had. Where illustrations requiring a highly calendered or shiny surface are required, these should be in the form of "tips" or inserts; the fewer of them the better. I may say, in passing, that the fewer magazines printed on glossy paper the child is allowed to read, the better for his eyes.

Handwriting.—As to the relative merits of perpendicular, intermediate slanting and the decidedly slanting forms of penmanship as well as the postures assumed in each I have not time to discuss them. In choosing one or the other, let us not forget that easy legibility is desirable both for the writer and for the reader and that it is important that the pen strokes should be thick enough to be read without eye-strain. When properly arranged desks are used and the illumination is good, perpendicular penmanship (taught in the upright position) certainly presents ocular advantages over every other form of handwriting with which I am acquainted. Writers on this subject frequently speak of curvature of the spine as the chief danger to the child when he assumes the abnormal positions so long associated with the old Spencerian copy book. It is time to remind them once more that myopia, chronic headache and other forms of eye-tire, are much more frequent if not more important consequences. The strain upon ocular muscles in their efforts to make two eyes functionate for hours at unequal distances from the near point often produces those varied, complex and disastrous results that we are in the habit of speaking of as "eye-strain."

In all forms of writing and reading, the book or paper should not be allowed to approach the pupil's eyes nearer than 35 cm. If he persists, with normal surroundings, in reading or writing at a nearer point, one may suspect an approaching myopia, or that he has a refractive or accommodative error that demands attention.

A few words about *blackboards and maps*. The objections to many of the former are manifold. As long as they are dull-finished and kept clean of chalk dust, they do not reflect the light into the eyes of pupils. They are not objectionable except that they may interfere with the proper lighting of the room. All blackboards should be frequently cleaned with competent erasers and the writing upon them should always be large and heavy and be done with soft white crayons. When colored chalks are used one must recollect that yellow and blue are the colors most easily recognized by pupils with defective vision and defective color sense. Wall maps of all sorts ought to have a restricted

use in the school-room, owing to the extreme difficulty with which a mass of names (some of them in small print) are made out by pupils some distance away.

Size of the School-room.—Apart from the question of air-space, ventilation and lighting, the size of the school-room is very important from the visual standpoint. When pupils are seated at desks too far removed from blackboards, maps, specimens on exhibition, etc., they are likely to suffer from eye-strain, particularly if they have weak eye muscles or are slightly short-sighted. In these events the ocular apparatus makes an abnormal effort to overcome the ametropia or heterophoria, and reflex symptoms result. Probably 25×30 feet are the maximum ground measurements. Such a room, with proper ceiling, window space, etc., will accommodate from 45 to 50 pupils.

Detection of Disease.—I have already referred to the desirability of having school children's eyes examined at the beginning of the scholastic year. Let me say, briefly, in this connection that the scheme first proposed by Dr. Risley and subsequently elaborated by my associate, Dr. Frank Allport, provides that at least one teacher in each school be instructed in this work, that it can easily be carried out in practice and it has been recommended by many boards of health and adopted by a number of school boards.

In a few of the states these methods have also been adopted by the legislature, and in my opinion they ought to be further employed as the most practical and most useful means of detecting diseased eyes and ears that I know of. The examining teacher does not pretend to diagnose the case in hand; he or she merely applies certain tests and makes sundry observations that any layman may, to determine whether or not the services of a physician are desirable—whether further medical examination is indicated or not. In this way the great majority of the serious ophthalmic, aural and nasal diseases of children may be detected—generally in their incipency and before irreparable harm has been done.

The School Desk.—I am well aware that I am walking in slippery places when I approach the desk question, but it has a very im-

portant bearing on eye-sight. As a proof that I am not commercially interested in any particular desk I will say that there are, in my judgment, several good forms of that kind of school furniture on the market, the names of whose makers I shall refrain from mentioning.

First of all, I am in favor of *single*, adjustable desks with a sliding top, as better suited to the *minus* and *plus* distance required for the comfort and accommodation of the growing, individual child. The desk should be adjusted vertically at the beginning and in the middle of each school year. It should be without foot rests; the lid should have a slope of 10° to 15° as best fitted to the perpendicular or slightly slanting chirography. When, for certain kinds of work, it is necessary that the desk top be almost flat a couple of small supports from the interior of the box desk may easily be arranged to accomplish this end.

It is hardly within my province to say anything about measuring the pupil for his or her desk. Printed instructions accompany the modern adjustable school desk. In the large public schools the teachers should not be expected to attend to this important, though time-consuming, task; it ought to be delegated to a supernumerary who might measure the pupils during a recess given for the purpose, the janitor or his assistant making the required adjustments after school hours.

Length of Time Daily Consumed in School-room Study and Recitation.—So far as ocular strain is concerned surely experience will teach the observing educator that when the attention is for too long a period fixed upon a book, blackboard, writing pad, map or other object, or if the class is too long bombarded with questions regarding the same, all kinds of fatigue, mental and physical, result. So is it with the oculo-nervous apparatus. It is of course difficult to lay down a rule applicable to every child. Edward Shaw believes, and I am sure most ophthalmologists will agree with him, that recitations should not for the first year, exceed ten minutes in length; for the second year fifteen minutes and so on gradually increasing the study period until the highest grade is reached with a maximum of forty-five minutes. Similarly, study hours in school should be frequently interrupted in the interest of eyesight and the nervous system.

Study out of School.—If I had my way I would not allow any child under ten years of age to do reading (especially of newspapers and magazines) or study out of school hours until he or she were at least ten years of age. "Oh! how will they pass their time at home?" . . . and then adds the anxious mother with a sigh—"there is so much for them to read!" My answer would be, "read to them yourself or ask somebody else to do it, or, better still, give them some constructive manual work to do in their play-room during the winter evenings and turn them out into the air when the days are propitious." Especially for our precocious, overstimulated, native-born American children, exercise in fresh air, sound sleep, and healthful, interesting exercise are more desirable than rubies—and, at least so far as the eyes are concerned, are in the end a better commercial investment.

In closing this incomplete study of the school-room and its influences upon the eye-sight for good and evil, let me draw your attention to the fact that almost without exception the laws of ocular sanitation are in accord with other rules of personal hygiene, thus furnishing evidence of the dimly recognized truism that ophthalmology is not an art or a science apart but is merely one chapter in the whole philosophy of healing.

V. COEDUCATION.¹

BY G. STANLEY HALL, LL.D., President Clark University, Worcester, Mass.

The disadvantages of coeducation after the age of twelve are at least suggested :

(1) By the fact that it violates a custom so universal that it seems to express a fundamental human instinct. In all ages of history and in all stages of civilization from savagery up, in the Orient, in ancient Greece and Rome, and with few exceptions in modern Europe, the dawn of puberty is marked by segregation of the sexes, especially for every purpose that can be called educational. While immemorial customs are not of themselves decisive, some of them, like, for instance, kingly rule, having been reversed with reason, this historic consensus of the race at the very least throws the burden of proof upon those who would defy it. It came in here largely because, when girls sought more education, boys' schools were already long established, and when the democratic ideal and especially the cry of equal opportunities for both sexes emphasized by the feminist movement made it the easiest and cheapest way. Hence, while it took a thirty years' war and a rich all-sided discussion to open college doors to girls, there has never till the last few years been any serious effort to examine coeducation at the earlier ages on its merit. We have simply drifted into it. Happily at last the problem whether we have not gone wrong is now fairly on and there is a prospect of another long and merry war.

(2) The arguments against it from custom are reinforced by many more or less systematic observations of children themselves. In the family the age of twelve finds boys and girls more or less segregated. They play different games, each sex by itself. Boys begin to organize teams and perhaps gangs, while girls cannot organize. Boys tend to withdraw from parental influence more than girls. They complot mischief and never tell on each other as girls so readily do. In the schoolyard they

¹ Read by invitation at the 31st Annual Meeting of the American Academy of Medicine, Boston, June 4, 1906.

are gregarious in their amusements and girls walk about in pairs, telling secrets. They are boisterous, fight and observe the rules of their game, while girls are more docile, quiet, peaceable and personal in their interests. Inventories of their reading show that the tastes of the two sexes are rapidly diverging. Boys already eschew stories of girls, of home life, of children and perhaps of religion, which attract girls, and read of adventure, perhaps of crime, are intense hero worshipers and are fascinated by what is remote in space, unusual, exceptional. So much is this the case that they are prone to be ignorant of what is near them, while girls know their environment best, are attracted to common knowledge which all share, to the conventional, are more influenced by fashions, more imitative and lack the boys' intense desire to know, be, do something distinctive that develops and emphasizes his individuality. To be thrown on their own personal resources in sports, in the class-room, in nature study and elementary laboratory brings out the best there is in a boy, but either confuses or strains a girl. Although there is no sex in science *per se*, the subtle, psychologic connotations of sex pervade everything in the way of approach, method of work and impelling interests. As if an atavism from the ancient, tropical early maturity, the average boy of twelve is to-day already a utilitarian just beginning to think earnestly of his future vocation, to look to what is for most the near end of school and the beginning of life. His interest in cars, machinery, hand work, horses, money-getting and all the rest has a more or less practical bearing on his career while all this does not touch the girl in whom culture interests are stronger and persist much longer. Hence it comes that even in the same class and subjects the motives to appeal to the methods of work and what is got out of a study differ; so too girls of twelve are more altruistic, sympathetic, more teachable, far more easily submit to school discipline. Hence, they excel and outrank boys in language, detail, finish, memory and in formal work generally, while boys lean to more meaty and substantial things, careless, perhaps, of details, precision and of form. Nearly all these essential and established distinctions the average teacher, who is intent upon instilling a

prescribed quantum of examinable knowledge, does not, will not and too often cannot see.

This fact has a naïve and exquisite illustration in the petition of 109 teachers of Boston boys' schools to remix them with the girls in the grades because they urge that boys are harder to discipline and to teach up to the girls' standard, so that equal pay to the teacher of boys and of girls is unfair. Of course it is harder to teach and to discipline boys, especially for women teachers to do so, but this is only one outcrop of the inevitable difference between the sexes which should be developed and not repressed. Good teachers of boys should be paid more, but to check these initial differences, by mixing the sexes would be a ludicrous, were it not so tragic an error. Sex distinctions should at this age be pushed to their uttermost. Boys should be made more masculine and girls more feminine. There is something wrong with the boy of from twelve to sixteen whom the average schoolmistress loves to call a perfect gentleman as there is with the deeply emotional girl often flighty of this age who deserves to be called a lady. These Boston boys who in their callow pin-feather age troubled these 109 teachers need male teachers rather than to be yoked up with girls just as their sex is beginning to burgeon and to assert itself normally in its own proper sphere. At this time when the feminization of the American school has gone farther than anywhere else in the world, so far, indeed that the few male teachers who remain are more and more prone to drift into feminine ways and view-points, when girls outnumber boys more and more as we go up the grades because boys lose appetite for study and drop out into active life without themselves knowing that it is because the very atmosphere of the schools is so feminine that it does not appeal to them as their nature demands, if there are virile men yet left in school work they should now rally under a program of man's rights and boys' rights in education.

(3) Of late years several scores of laboratory tests on large numbers of children have been made in order to find sexual differences. Not a few are well established, while others are still uncertain, the results being as yet contradictory. These

systematic observations show us that sex distinctions pervade every sense and function, amusement, attention, memory, zest. Into these I shall not enter here. One result, however, stands out perhaps more boldly than any other. It is that in all the perceptive, passive, afferent powers girls on the whole fully equal and often excel boys, receiving and retaining better and are even at twelve nearer to their full maturity of intellect than boys. They are already well on in the subtle acumen of tact, taste, appreciation and intuitive insight which makes the pubescent girl forever appear to be such a prodigy to slower ripening man, who, in this respect, will never overtake and surpass her though he will in height and weight where her supremacy lasts but a few years, quite understand her to his dying day. The high school and college girl especially is far more mature than her boy classmate of the same age, understands him far better than he can her and is distinctly his mental superior for a time, but in efferent, motor power this differentiation between the sexes is now beginning to open a wide chasm. The twelve-year-old boy will double, perhaps treble and sometimes perhaps quadruple his total strength, but the twelve-year-old girl will never double hers. Finally in the biological world the female is the agent of selection. She divines, discriminates and the male acts, does and learns by doing. Here gonochorism or human dimorphism culminates, and we can best educate boys by motor methods which, while they are in some respects also a boon to girls, are now opening up for boys a scope, range and power which we are but just beginning to glimpse. This is the education of the future and just in proportion as we find and make ways to bring out all its resources the more distinct will be the matter, methods and ideals of training for the two sexes. While the two circles representing the psychic life of each will always overlap and have some common area, that peculiar to each should and now seems sure for a time to increase.

VI.

THE ADVANTAGES OR DISADVANTAGES OF COEDUCATION.

BY DR. WILLIAM T. SMITH, of Hanover, N. H.

The question of coeducation is so complex that I am glad not to be limited to the advocacy of either side. Of all our so-called "problems" the woman problem is the last to be hysterical or even anxious about. The element of sex is so fundamental, so dominant in the higher organic life that we may be sure that nature will work out her own purposes in it and that we in our wisdom or our folly can influence it no more than we can influence the law of gravitation. Our methods of training may affect individuals and communities as they help or hinder nature's purpose, and there is need of careful thought, that they may help and not hinder. But we need not fear that the great compelling sex factor will not take care of itself. There is no more danger that coeducation, woman suffrage, bloomers, or any other form of woman's rights will disturb materially the true relation of the sexes, than there is that the multiplication of breakfast foods will eradicate the healthy human appetite.

The most obvious advantage of coeducation is economy. This is the chief reason for coeducation in the West. In the early colonial days girls were not admitted even to the grammar schools. The Dame Schools were considered sufficient for them. At the establishment of the Hopkins Grammar School in New Haven in 1684 the rule was laid down that "all girls be excluded as improper and inconsistent with such a grammar school as ye law injoines and as is the designe of this settlement."

The sentiment expressed in this rule prevailed for 100 years. In the latter part of the eighteenth century it was permitted in some towns of New England to give to the girls two hours of the school day. In Norwich, Conn., these were from five to seven A.M. The town of Gloucester in 1790 passed this resolution "that two hours or a proportionable part of that time be devoted to the instruction of females—as they are a tender and interesting

branch of the community but have been much neglected in the public schools of this town." The first public school in New England for females was established by the selectmen of Portsmouth, N. H., in 1773. At the beginning of the nineteenth century the meager opportunities offered to girls had been so eagerly availed of that private schools and academies for them were opened, and by the middle of the century there were many grammar schools and high schools throughout the country in which boys and girls were taught together. As the great West became settled, the principle that girls should have the same education as boys up to the end of the high school period had been established. The only question with them was one of the methods and this question was quickly answered. It was "Hobson's Choice." They could not afford separate school systems. So the boys and girls must be taught together. As colleges were founded the same consideration held good. As state universities were founded no other course than coeducation was possible.

Another advantage of coeducation which the girls are quick to perceive is that until recent years it has been impossible, aside from the expense, to secure for the girls in separate institutions equal opportunities. The boys have been first in the minds of educators in the past. To them belong the treasures of the oldest universities, the accumulated stores of educational tradition and experience. Much time must pass before the newer colleges for girls can acquire the same prestige.

In the West coeducation is a corollary of the proposition that girls have a right to opportunities for education equal to those of the boys.

The main argument on the other side is that there are sex reasons which are imperative against coeducation. The sex reasons concern, first, the physical health of the girls; second, the mental needs of the girls; third, the character of both sexes, meaning by character the sentiments, impulses, ideals.

The first two considerations concern the girls only. The health of the boys is not endangered, and it is assumed that the curriculum will be dominated by the needs of the boys. At Leland Stanford the number of girls which may be admitted is

limited to 500. In Northwestern University it is limited to the capacity of certain dormitories. No limit is set in either of these universities to the number of boys.

The third reason concerns both boys and girls.

As to the bearing of coeducation on the health of the girls: This is the reason most emphasized by the opponents of coeducation, since the discussion was opened by the famous book of Dr. Edward H. Clarke, of Cambridge, on "Sex in Education," written over thirty years ago. His contention is that the sexual functions of the girl impose on her a law of periodicity in work which unfits her for taking the boys' curriculum; that during adolescence it is supremely important that the vital forces be not diverted from physical development by brain work; that the degree of continuous mental application which is demanded of a boy in school and college results in case of the girls in physical enfeeblement, pelvic disorders and sterility. This is conclusive if true, but it was promptly denied by writers entitled to credit. Affirmation and denial have been repeated to the present day. Dr. Clarke cited seven typical cases. Representatives of Michigan University, Vassar, Oberlin and other colleges for women replied to him presenting statistics which seemed to show that in fact the girls were able to maintain continuous work and that sickness and mortality among them during and after their college days was no greater than among the boys. Numerous statistics bearing on this question have been gathered. Some of them are of little value. Answers by girls to circular questions such as: "Do you worry over your work?" "Is your menstrual function more or less regular?" "Are you in better or worse health since entering college?" "Do you or do you not study seriously?" are not to be allowed much weight. Testimony of medical and other officers in coeducational schools is of more value.

The time assigned to me will not allow citation of these statistics. From careful examination of them and of other reports from observers, from conversations with graduates of colleges for women, coeducational and non-coeducational, and from my own observation I am led to conclude that the danger to the health of young women and to their proper sexual develop-

ment in a course of higher education has been very much exaggerated, and that with proper oversight they are as well fitted for higher education, either coeducational or separate, as boys.

It is true that sexual differences ought never to be overlooked in training girls. It is true that no educational scheme that contravenes the great function of motherhood is to be tolerated. It is true that a large proportion of American women are not normal in health, but it is not proven that this disability is due to higher education. Girls are more likely to be physically improved by the regular work, the abstinence from dissipation, the athletics, the steadying influence of the aims and ideals of college life, than to be injured in health. Dr. Mary Putman Jacobi meets the physiologic argument thus. The nutritive and reproductive functions, she says, are under the control of the sympathetic system. In animals below the vertebrates the whole energy of the animal is expended in those functions. In the vertebrates we have the cerebro-spinal system predominating more and more as you rise in the scale. In man this predominance of the brain and cord is greatest. The boa constrictor eats and lies torpid; the cow eats and ruminates. Man is able to think and talk over his dinner; to manufacture heat in his limbs while drawing blood to his cerebral hemispheres; to sustain in complete unconsciousness innumerable complicated and delicate chemical metamorphoses in all the tissues of his body while concentrating every conscious effort of his mind upon equally delicate processes of thought and will. As the authors who have asserted the complete subordination of the brain to the instincts in woman have thus, perhaps unconsciously, reduced her to the physiologic level of the crustacea, so those who insist on the incompatibility between cerebral action and the process of ovulation imply a predominance of ganglionic activity in women that must render them the physiologic inferiors of the animals or individuals in whom no such incompatibility exists.

As to nubility taken as a test of normal development, 40 or 50 per cent. of college girls marry, a less proportion than of uneducated girls. As to fecundity, statistics from the first ten classes of Vassar show an average of two children for each married

college graduate. This is the same proportion as in the six Harvard classes from 1872 to 1877 on which President Eliot made a report: two children to each graduate.

What are the advantages or disadvantages of coeducation as to mental training? It is claimed by the opponents of coeducation that girls are not capable of as severe mental discipline as boys and that the constitution of the girl and the part she is to take in life call for a different mental training; that girls need and naturally prefer art and literature, music and domestic science to abstruse studies in mathematics or language or pure science, but experience seems to be against this statement. The universal testimony is that in undergraduate classes the girls do better work than the boys. As some one has expressed it, the girl can more readily "mobilize her forces." It appears also that the girls elect the same courses that the boys take. I am told that at Smith College the courses in art and music are but little patronized. Miss Abbott, in an analysis of statistics of thirty years at Vassar, found that of 1302 graduates, only eight had followed art and music as professions, six-tenths of 1 per cent. The same number had taken up agriculture. Five hundred and eighty-six, 45 per cent., had engaged in teaching. On the whole it seems to me that the evidence is that the disciplinary instruments that are found to be good for the boys are good for the girls; that the girls are fully able to take the same courses and that when they have a choice they do take them.

Says Professor Dexter writing in 1904: "A noticeable fact in the development of the separate colleges for women is the tendency to make the courses in them as nearly as possible like those of the colleges for men. In their inception they had certain characteristics which distinctly characterized them as women's colleges; music and art were prominent in their curricula, and there were evident attempts to modify the intellectual training then in operation in the colleges for men. Such attempts have been gradually given up in the best women's colleges, whether wisely or not I should not wish to say."

What are the advantages or disadvantages of coeducation in its bearing on character?

It is claimed for coeducation with truth that the presence of women has a refining influence upon the men and that the presence of men is an incentive to the women. It is claimed that nature associates the sexes in the family and in the world and that to separate them in education is contrary to nature. Is this latter claim true? Boys and girls grow up together in families, but the boy no sooner dons his trousers than his boyhood asserts itself and he bitterly resents being classed with the girls. The girls have their own amusements and find their most congenial companionship in their own sex. Men and women marry and in the home there is a close partnership. But outside this sacred enclosure they are largely separated in their work. In business, in combinations for scientific or literary purposes, in club life, in industrial life a natural cleavage exists. They come together chiefly in purely social activities and these are dependent for their interest on sexual consciousness. To join men and women on equal terms in daily competitive work seems to me against nature. It opposes every instinct except that of sex; and it is desirable that during the period of study sex consciousness should be in abeyance.

It is an argument for coeducation that the daily mingling of the sexes in common work dispels illusions and puts them on a rational footing with each other. But I doubt whether this is desirable. Nature has provided that the sexes shall idealize each other. It is by this idealizing that each is able to be the complement of the other. Blot it out and you go far to destroy the basis for the purest joys in life.

I am satisfied that that intangible thing called college spirit which is of utmost value in development, is impossible in its highest measure for either men or women in coeducation. It is found in its strength only in the separate colleges.

VII.

THE DANGEROUS INFLUENCES OF OVERTAXING THE GIRL'S MIND, PARTICULARLY AT THE AGE OF PUBERTY.

BY AUGUSTUS P. CLARKE, A.M., M.D., Cambridge, Mass.

One of the influences that may lead to overtaking the girl's mind arises from the fact that she is, for the most part, more conscientious in the pursuit and attainment of a full knowledge of the subjects prescribed than the boy often proves to be. Extended experiences show that if the boy finds that the subjects set before him to be mastered are unduly difficult, he is likely to resort to various expedients to meet the contingency. I remember of hearing Professor George Herbert Palmer, of Harvard, remark while he was addressing the Cambridge Club, on the subject of woman's education at Radcliffe, that the average per cent. attained by the examination of women at Radcliffe was considerably above that of the men at Harvard, though the classes at Radcliffe and at Harvard were taught by the same professors. Professor Palmer further remarked at the meeting that he hoped the time was not far distant when such a difference would be much less. The professor may have meant by that statement that he hoped that women of less intellectual power and mental brilliancy would be induced to enter the arena of learning, or that the men would take warning by the disclosure of the woman's efficiency and thus wake up to do better work. He could scarcely have hoped that women generally who had heretofore displayed such masterly activity and had attained such brilliant results as were shown by their various examinations would slacken in their pace of endeavor to reach up to the higher ideals of sound learning and great achievement.

But it must be confessed that many women of less natural aptitude or of very mediocre powers for great scholarly advancement are now seeking admission into the higher institutions of learning; many such have been forced by a mere process of cramming along particular lines of curriculum and on subjects for

which they have no special relish and on lines of pursuit which they look upon as only a hard task work to follow. Such girls are often unreasonably hurried on to take position in their academic courses by the vain desires of their inexperienced mothers or guardians in order, too often, to have their daughters appear to shine in society. It has not infrequently been observed that while a girl is preparing for college work, or even while in college, she is not only forced to attempt to carry out the work of the institution but she is urged to attend to many social engagements necessitating entrenchment upon the later hours of night. I have sometimes observed a girl endeavoring to carry not only her college studies but to attend to numerous social appointments, such as observing the requirements of long-drawn-out church service and not unfrequently taking a prominent part in the preparation and execution of exacting church choir music. Is it then anything surprising that a girl of delicate physique and one who has been unduly or hastily trained to meet such an ordeal should break and become a subject of anemia, of hysteria, of dyspepsia, or of some form of neurosis and of mental exhaustion?

Another element that should not be overlooked in the consideration of the subject is that of the custom comprised in the system that has grown up in our academic institutions, of offering prizes for certain supposed efficiency of class work. I mean by this the distributing of honors to a few pupils for higher attainments in some way judged to have been obtained, while others quite as worthy under all the circumstances find, after many struggles and vain efforts, themselves altogether left out of any marked consideration.

Recently, a young woman, a student, was found to have committed suicide. It appears, as I have been informed by a physician who has had much experience in the treatment of diseases of the nervous system, that the young lady in question was an applicant to be chosen for honors for which she had long striven. Not being successful, she took wood alcohol and before her death she was heard to remark that she supposed that her mother would prefer to see her die than not realize that she had proved successful.

The offering of prizes and rewards as a stimulus to the proper officers, for them to make long and sustained efforts for the apprehension of the vilest of criminals who have made their escape from the hands of justice is often to be commended, so it has long been recognized as matter eminently proper, to offer a premium, for the production of essays, or for the making of discoveries, and the solving of problems that may lead directly to amelioration of suffering or to the advancement of material prosperity.

To offer prizes or honors for certain supposed attainments made by young female students, whose mental equipoise at best is only in a formative or immature state, is a measure of proceeding which I have from my own professional experience long felt should be discountenanced.

A girl working for a prize or an honor above her compeers stands, in some respects, like a prize-fighter or a matador in a Spanish bull-ring. The antagonist may be overcome, the maddened beast may be slain, but no public interest will be promoted by such a contest, only the spirit of self-indulgence of the heartless crowd of spectators, making empty plaudits for the contest seen, will be satisfied.

The objection to allowing competition in the girls' classes for gaining higher degrees of efficiency lies sometimes in the danger from the exercise of arbitrary judgment in all such matters. It is well-known that some teachers are far from always being perfect. Some teachers in high places, experience has tended to reveal, entertain prejudice in favor of a few pupils, and often a marked indifference toward others. This fact taken in connection with ties of family, or social influence, and with the occasional operation, as it has too often been suspected, of graft, will tend to warp the judgment and be productive of a decision that will be unfair, if not pernicious in its influences on those who have staked so much to be counted among the few who are regarded as most excellent.

An adverse decision rendered in case of a boy or young man is looked upon by him almost always as a matter to be expected, or of small consequence. He feels only for a short time, if at all,

the chagrin on seeing his defeat; he may congratulate his victor or victors, and he soon lays his plans for gaining something which he thinks will be more for his best interests. A girl or young woman, for the most part, is liable to take a different view of the matter; she is more likely to lose courage or to become depressed. Her sleep may be interfered with. Her digestion will often be disturbed, her appetite may fail. She thus becomes anemic; the menstruation becomes deficient, or at times painful or too profuse. Other untoward nervous symptoms may supervene. These all tend to work against her further advancement, particularly so if she has to compete for a public position and be required to undergo a trial to test her worth as a teacher or as an incumbent of an important public position. The question, on her attempt to undertake something new, too often raised, is as to how she stood in her college class. Was she the recipient of honors? The negative of this, unless she has a strong pull, will surely come back to plague her. Yet the work of some of those who did receive extraordinary college marks may have, after all, as before said, been only of doubtful merit. By the outcome of all this the girl feels keenly her position and takes it much to heart. She loses interest for her further progress; she grows indifferent toward the success of her alma mater; she may marry and thus early disappear from the stage of public activity. Her offspring will not be inclined to struggle to duplicate the experiences of her early undertakings.

It may here be incidentally remarked that it is only within a brief period that the importance of instituting measures for the true elevation of woman has been recognized. Saint Paul says that woman should not speak, or rather that she should be silent in an assembly. He says that the glory of woman is in her hair. It is not long since that the recent remark of a clergyman of one of the most influential churches of this land came to my certain knowledge. It was to the effect that a wife should always submit to almost any service and even to an indignity if it should appear to contribute to any degree of pleasure of her husband. The worthy lady who brought me that statement regarded it as most abhorrent to all ideals of propriety respecting connubial relation-

ship. It deserves to be remarked that this requirement of submission on the part of the confiding wife to the desires of the husband, as set forth by the reverend clergyman, should not be looked upon as something of his own original inculcating but rather as a voice, as it were, from the charnel house, disclosing in echoes the buried records of woman's long-drawn hidden sufferings and the consequent effect that they have had upon the gentler sex of her posterity.

Thanks to the growth of the sentiment in favor of woman, as is expressed by modern legislation in her behalf. Woman is no longer slave to the caprices of man; she stands free as man before the law. She inherits, nevertheless, from her female ancestral prehistoric prototypes the effects of the influences of her long subjugation to the sterner sex. This is still shown by the depressing emotion which she often shows when she finds herself unable to accomplish all that may be expected of her. Her display of exceeding conscientious desire to fulfil all engagements that may be demanded of her by her husband or by those who have control over her, or by the conventionalities of society reveal in no uncertain manner her unswerving devotion to the discharge of every duty as she conceived such to be required during the countless ages in the past. Not all the baneful influences of her unhappy plight so long continued in the distant past should have been expected to have vanished on the early dawn of her liberty. Many generations will have to come and go before she can reach in mental grasp the full fruition of her freedom. In the meantime her weaknesses, if such manifestations can be justly called such, must be borne with. She must be helped, encouraged, strengthened, and not be depressed in her engagement in all her honest, earnest, and ardent endeavors for her rightful enjoyment of life and for the promotion of what she believes to be for the best interests of her society.

It may be argued, as it has already been, that woman's freedom thus gained and her entering so conspicuously into other affairs than those of the domestic concern may render her masculine in her mental attributes and thus her charm of manner, her sweetness of disposition, and her grace of action may be

seriously disturbed, if not entirely lost. In answer to this, it may be said that if those attractions and others of a kindred nature can only be preserved by the repression of her freedom which she ought to enjoy, it would be better that the human race should pass and that the forces of nature should be left to their own operation.

Much used to be said about the recurring catamenial periods as being of much hindrance to the acquisition of woman's education, and reference was made to the German mothers who were accustomed to keep their girls in bed during the time of the occurrence of that condition. This may have been a custom to a certain extent with people that subsisted largely upon stimulating foods and drinks, as those of beer as has been used so freely by races of the Germanic extraction, but so far as my own experience has been concerned, and that has been quite extensive, I have seen no occasion to enforce generally such a measure, no more than is necessary in cases of boys or young men who indulge very freely in a too hearty diet, in many exacting sports, or who indulge in the use of some of the various forms of tobacco, or substitutes of a kindred character. Such boys are frequently on the sick list and are thus unable to attend regularly to all their collegiate requirements. Writers on woman's education, and many such who have pretended to be very learned, have been accustomed to speak of the physiology of the girl as being of such a peculiar character as to indicate that she is only fit to be at intervals a mere ornament for the parlor or drawing-room, as if she had been originally cast in a mould and had there received her impress from which she could never depart. What is the physiology of woman or of man or of any animal or of any vegetable organism? Does not all experience show that organisms of all varieties have undergone during the countless ages in the past innumerable changes and functional activities whereby they have resulted in the development of the human race, the pride and glory of the creation, as we use the term? Shall we speak of the appetite of the cannibal as if his craving for a diet of human flesh were a physiologic function that has its seat somewhere in a convolution of the brain? If it ever had or if it has such a localization it is

high time that proper measures were instituted for its collapse or for its entire disappearance.

Is the functional physiologic process of menstruation dependent on centres that have their localization in the encephalon? And does the existence of such a centre or centres materially interfere with the higher intellectual attainment of woman? The female chimpanzee and other females of the higher apes are subjects of the catamenial action. The occurrence is due probably to the erect position, which necessitates a harder tissue of the uterus and excludes the presence of the enormously developed lymphatic system, which is found together with a flabby uterus in animals whose trunk is horizontal.¹

Much of woman's early position has been shadowed forth by the earlier writers. Thus Thomas Fuller (1608-1661) says that "daughters are silent strings sending no sound to posterity, but losing their own surnames in their matches." In another place he says that "she commandeth her husband in equal matter by constantly obeying him."

May it not be here asked whether the sterner sex has lost all the simian traits, and shall we not answer the question by asking,

And why not man be proud? for how he came
Or how evolved, he's surely not to blame.
While reasoning thus an imp confounds his sight
In form called plagiarism and hints that quite
Not all of claim is past from apish age,
When presence such stalks pulpit, deak and stage.

May we not hope that by greater circumspection manifested on the part of the young woman by the influences of better hygienic measures, by the selection of plainer and more appropriate articles of diet, and by avoiding many of those various unnecessary forms of conventionalities of society and by availing herself of the helps to be gained by the progress of gynecic medical science, other and more salutary changes will at length take place in the uterine system whereby the lymphatic channels in that region will become more numerous and that the phenomena of

¹ See Garrigues' work on "Diseases of Women," p. 117, and other authorities referred to by him.

menstruation will prove less disturbing, if not be lost altogether? I already feel that I am justified in saying that I have observed during my professional experience, which covers a period of more than forty years, that some such changes within that period for the better have taken place. I am not speaking of course of what altogether concerns the present-day young woman, but more particularly of that which centres in the hope and destiny of the race.

Many factors which still operate to retard the young woman's progress have been those, as said before, that are incidental to the conventionalities of society. Among the unfavorable factors have been the habit, all too prevalent, of sitting and sleeping in cold rooms with windows more or less open and thus the girl becomes directly exposed to the chilly, damp, and midnight air, by which chronic catarrh and its allied morbid processes have been superinduced. The wearing of inappropriate or much too tight-fitting shoes that may have been productive of undue coldness of the feet or lower extremities have not infrequently caused insalutary reflexes upon the brain or central nervous system.

The wearing of such dresses and other articles of clothing as have a constricting or pathologic effect upon the thoracic, abdominal, and pelvic organs—these all tend to excite changes upon the cerebral and spinal centres and to lead to more or less chronic invalidism. But, as said before, I have noticed considerable improvement since the beginning of my practice, and it is still further to be hoped that as soon as the vanity of many of the older mothers shall cease to be so potent in regard to their daughters' outward appearances, a still greater change for the better may be expected to take place.

In regard to the consideration of the main question proposed, namely, "The Dangerous Influences of Overtaxing the Girl's Mind, Particularly at the Age of Puberty," little more need be said. A girl possessing a normal physiologic organism, as we are accustomed to use the term (though the term physiologic in its truest sense is only relative in its application), needs scarcely fear being overtaxed by pursuing the studies usually assigned by the proper authorities connected with our high schools and

academic or collegiate institutions. What may work, however to her disadvantage, is almost always her engagement at the same time in outside attractions, not observing the proper hygienic rules as regards her diet, her sleep, and her dress. Another drawback is her indulgence in excitement that has no permanent and beneficial influence for her progress in sound knowledge and happiness in her later life.

Every girl before she enters upon any extended mental school work, should carry well in mind what the venerable Professor Charles Eliot Norton once said of our women of the University City. The reason for the great success and achievement of the noble women of Cambridge was due to the fact of their "plain living and high thinking," a sentiment comprised in a quotation most aptly borrowed from the great English poet, William Wordsworth.

The following is taken from the *Boston Evening Transcript* under date of May 19, 1906, and has reference to the notable career of Prof. H. P. Bowditch, of Harvard.

THE GROWTH OF CHILDREN.

Of most popular interest were his studies on the growth of children, carried out by observations in the Boston schools. These showed that up to the age of about twelve years, boys are slightly taller and heavier than girls of the same age. From twelve to fifteen years, however, girls are taller and heavier than boys of the same age. At about fifteen the boys again take the lead in height and weight, gaining in both more rapidly than before. The gain of girls slackens, until at twenty they are both shorter and lighter than boys of the same age. This fact of the sudden growth of girls from twelve to fifteen has an important bearing on the matter of their education. It shows a sudden concentration of the energies of growth on the side of physical development during that period of about three years, and indicates that the mental and nervous strain on schooling should be relaxed during that time to give first chance to the construction of a sound body. The slackening of increase in weight and height which soon follows this period, shows that in these years the soundness of the future woman's physique is largely determined.

In answer to this it may be said that the observations made in the Boston schools though very important may not be typical of the schools generally throughout the country.

One reason, no doubt, why the boy grows faster before he reaches his twelfth year, is that he has a freer range of activity than the girl. The girl, however, between twelve and fifteen years finds less restraint than she does before she reaches the beginning of that period. After fifteen she feels that she is approaching womanhood and she must become restrained again by the conventionalities of society, as the relations have regard to her dress and her free exercise in sports. Her ways of living afterward thus become more mechanical and artificial and less natural than heretofore. Such observances are usually forced upon her by the caprices of those who are desirous of keeping her under control. It should be remarked that as the girl's increased physical growth takes place between the ages of twelve and fifteen years it is favorable to the development of her mental characteristics without prejudice to her physical well-being. This is a period in her life most favorable for the beginning of the study of modern languages, for learning the rudiments of art-work and for entering upon the pursuit of experimental science. The early years of a girl's life, say from seven to seventeen, are really the best and it is the only period in which a girl can master successfully for speaking correctly and fluently a foreign, modern language.

While abroad, I met several girls and young women who could speak six or more languages with great ease and fluency. These languages had all been begun in childhood. One lady in particular who had never left her own country had not only acquired a complete mastery of English but of several others. Her conversation and accent were charming. She could turn with the greatest ease and grace from the English and speak in Italian, French, or German, as I was assured by those who conversed in my presence with her. The gentlemen who engaged with her in conversation were scholars of distinction and were representatives of their respective countries. The young ladies who could speak the several different languages appeared to be strong and not to have suffered from any breaking down from overstudy.

VIII.

ON THE DANGEROUS INFLUENCES OF OVERTAXING THE GIRL'S MIND, PARTICULARLY AT THE AGE OF PUBERTY.

BY L. DUNCAN BULKLEY, A.M., M.D., New York.

The animal frame is a machine, marvelous beyond human conception. Not only is it possessed of the power of self-feeding, self-planning and self-acting, but, still more wonderful, it has the power of reproducing itself.

But it is well to remember that the human animal is only a machine. Started in life with a varying degree of vitality, requiring continually to be properly nourished, it is liable to be deranged in its various organs and functions by a variety of agencies, and in the end it tends to wear out and pass away.

We all recognize the imperative necessity of the proper care and nourishment of the infant, and what a great bearing these may have on the future well-being of the child and adult.

Much has been said and written upon the management and feeding of the growing child, and great movements have been carried on against child labor; much thought has also been given to the early education of the child, with considerable diversity of opinion, Burbank recently insisting that nothing should be taught from books before the age of ten, while others urge beginning at a very tender period of life.

It seems to me, however, that there is not sufficient knowledge extant and judgment exercised in regard to the proper care of young persons approaching and during that most important period of life, puberty, when the sex of the individual is really being formed, and when the powers of procreation are being established; and from considerable observation and thought on this subject for many years, I am convinced that incalculable harm has resulted in numberless instances, from errors of life, largely along the line of what we often erroneously call education. It must be remembered that in this transition period, as in earlier life, there is very little instinct of self-preservation which can operate in the

individual, as in older life, but everything is moulded and guided by outside influences, and the guardians of youth are the ones mainly influential in shaping the course of life; moreover, ambition, pride, and shame often disturb what little judgment the young person might be inclined to exercise towards self-preservation.

Turning now to our special subject, "The Dangerous Influences of Overtaxing the Girl's Mind, Particularly at the Age of Puberty," let us recall for a moment some physiologic matters involved.

We all know perfectly that this wonderful human machine is run, in every department of its activity, through the agency of the nervous system, or, better, by means of nerve activity. It is questionable if a single cell in any organ (unless it be in the blood itself) has the power of the slightest action without nerve agency; and as a corollary to this, with each particle of activity anywhere there is some expenditure of nerve energy, and some waste of nervous tissue, needing repair; and this needed repair is largely secured during sleep.

Going further, we recall that the mental state and condition of the nervous system have an immense effect upon the manner in which the various parts of the economy do their work. We all know the effect of worry, excitement, shock, etc., upon the digestive system, and know that lack of appetite, nausea and even vomiting, and diarrhea may be produced thereby, and also observe the occasional effect of the same on the bladder and rectum, requiring their immediate emptying; we likewise know that mental pre-occupation may produce the reverse result, and that constipation and its consequences may ensue.

The neurotic relations of the sexual organs are also familiar to all, especially as they are exhibited in females, as are also the various forms of nervous derangement, neuralgia, hysteria, and even up to epilepsy and insanity, which may occur from disorder of the menstrual function.

Now we know that during puberty, and often for a good while before and after its commencement, the sexual organs of the female are undergoing developmental changes, and even when

the mysterious "menstrual cycle" has become fully established it is subject to various derangements, whose true cause is often difficult to determine, and whose perfect cure is often very difficult to accomplish.

And yet, it is just at this time, when the human machine is striving to develop itself to maturity, and when it is wrestling with the problem of preparation for procreation (for each menstruation has been rightly compared to a miniature confinement) that the strain and stress of modern education becomes most active, and the nervous system is often taxed to its utmost.

Remembering what we know in regard to the intimate relation of the nervous system to every portion of the processes of life and to the sexual system, I submit if it is not, from physiologic reasons, rational to expect that the overtaking of the girl's mind at this period would be very likely to have dangerous influences? There can hardly be other than an affirmative answer.

But clinical experience abundantly confirms the result of scientific reasoning, as any one who has seen much of medical practice must acknowledge. My line of practice has, perhaps, given me unusual advantages of observing this, for hardly a day passes, certainly not a week, without my seeing one or more instances where faulty management, mainly along supposedly educational lines, has resulted disastrously to young girls about the time of puberty, or soon thereafter; and in many instances it has been only with the greatest difficulty that the harmful results therefrom have been overcome. Time forbids my citing examples, but I could, from my case records, easily give dozens, scores, or perhaps hundreds of cases to illustrate this subject. Many of these patients come to me for relatively slight ailments, acne, eczema, psoriasis, etc., or even only with a bad nutrition of the scalp, and falling of the hair, but a close investigation of the case has time and again revealed a most deplorable state of the health, and all of these troubles will be found to be dated from some overstrain in school, boarding school, or college. In other instances a mother would bring a second daughter, not with any affection of the skin, but only with dyspepsia, constipation, headache, or sometimes only with debility or menstrual disorder,

and occasionally all the troubles I have mentioned would cease only when the mental pressure was removed.

So clearly have I traced many different disorders to the strain attending mental culture, that on repeated occasions I have congratulated patients or their guardians that they were thus led to seek medical aid and guidance before more serious consequences had followed the nervous strain, for I can look back on many instances where irreparable harm has already occurred, and where the patient was a physical wreck, owing to erroneous methods or practices connected with education; and this applies to music, drawing, painting, etc., as well as to purely literary studies.

The rationale of all these difficulties from overtaxing the girl's mind, especially about the age of puberty, is easy to understand in the light of what has preceded. I quite recognize that different persons are constituted differently, and that some individuals and machines can seem to stand more strain than others. But we must all admit that there is a limit to everything, and that every material has a tensile strength, beyond which it cannot be taxed without breaking. Many girls undoubtedly go through educational strain during the period in question without grossly apparent harm, and I know many who have seemed to thrive under it. But, from years of observation I am convinced that many more suffer in their physical condition than is often suspected, while possibly those who have seemed to do well, and keep perfect health, have done so owing to unusual vigor and vitality, or to modifications as to the degree of mental activity not easily recognized.

And this brings us to the real and vital part of our discussion. The development of the mind can and should, of course, go on with that of the body, and it is undoubtedly possible to achieve a high degree of mental attainment coincidently with the retention of good health. But, as in every other field of activity, the task should be carefully adjusted to the strength, and every detail of health should be accurately attended to—and, according as these ends are perfectly attained, so far is the individual in charge a good educator—*mens sana in corpore sano* is a motto which should be inscribed everywhere in educational institutions;

for, alas, the principle is too often either forgotten or misunderstood through carelessness or ignorance. I am happy to say that I do know of some notable exceptions, in boarding schools, where even the matter of a morning evacuation of the bowels is the subject of daily report and record.

The family physician, or the specialist who may see girls during the period under consideration, has a great responsibility in all these matters, and unquestionably could avert much trouble, if sufficient painstaking care were exercised; for, it must be remembered that parents and guardians seldom attend to these matters minutely, even if they have the requisite knowledge, which they generally have not; and in order that all may be correctly attended to, the physician must consider that the young person is absolutely *ignorant* of them (or at least *ignores* them) which is usually the case.

Allow me in conclusion to apply practically some of the facts and principles which we have been considering; and although some of them may seem homely, and possibly beneath the physician's notice, I know from experience that they are often of the greatest practical importance.

Studying too soon before or after eating certainly can delay the digestion, and so by interfering with normal metabolism may excite a train of ill effects. At the time of menstruation the girl should make a difference in regard to both mental and physical exercise, and, during the developmental period at least, should take more rest. In boarding schools the hours of study, exercise, recreation, and sleep are often carefully arranged and guarded, but when living at home or in college girls often err greatly in regard to many details of life, and frequently need to be rigidly instructed in regard to them; thus, they need to be warned against studying late in the evening, and also against late, and especially irregular, bed hours, etc. And this should not be mentioned only once, but should be repeatedly inquired into and proper obedience enforced.

Girls studying at home and at college also require instruction in regard to various hygienic matters, such as the daily, morning evacuation of the bowels, the avoidance of eating between meals,

eating slowly, etc., in fact, to be guarded against the many errors of modern life, which contribute greatly to ill health, especially while the brain is being taxed, often to its utmost capacity. The matter of eye strain and defective vision is also one which should be looked into. While exercise is important and necessary, and must often be directed, many growing girls quite overdo it, and take exercise when recumbent rest would really be the best form of *re-creation*.

Finally, while many girls are injured more or less seriously by overtaxing the mind during puberty, it is quite possible, with the greatest care on the part of parent or guardian, physician, and educator, to secure a fully developed mind in a fully developed body, a perfectly working human machine, ready for service to God and man.

DISCUSSION.

President G. Stanley Hall, of Clark University, Worcester, Mass. (by invitation):

I understand that I was to say a few words upon Topic No. 7 and did not know that the discussion was to cover all the papers of the forenoon and afternoon. I will, therefore, take the liberty of saying a word upon Topic No. 7.

Most of you, no doubt, are aware that there has been within a few years a very wide-spread increase of interest in matters of the relation between disease, sex and procreation. Every one of course has Galton's work. He proposed in a way to endow marriage by having the State set apart sums to those who should be approved as fit to marry. A sociologic society was formed and a publication has been issued. The main theme of that society is to study the functions of family, church and state and to assist in endowing future generations with the maximum of the most precious wealth—heredity—on the principle of Huxley, who said that one ounce of heredity is worth a ton of education and environment combined. In Germany there has been issued an organ, now in its third volume, which attempts to put the life of society upon a biologic basis. In the discussion of this society and in its publications the restraints that have hitherto hedged about free, frank, open, plain speaking on everything pertaining to sex have been somewhat abandoned, and we have human stirpiculture about where Plato would put it, about where breeding cattle on a Kentucky farm is put. The literature must, I think, number two or three score of works. I cannot begin to give any idea to those who do not already know about it of the range and scope of this work, but I believe it is epoch-making. For instance, a group of biologists, headed

by a professor of biology of Berlin, has drawn up a law that is about to be laid before the German Reichstag, and they are sanguine enough to hope it will pass, to the effect that any mother who can, in the opinion of the physician who attends her, nurse her own child and does not, shall pay a fine of from 300 to 600 marks, and any mother-in-law or husband or anybody who advises a woman that the doctor says can nurse her child, not to do it, shall pay a fine of from 400 to 1000 marks. One of the most comprehensive works and which goes beyond anything of a similar kind traces the development of over 20,000 men from infancy. These were divided into two classes, those nursed by their mothers and those bottle-fed. It was found that when they got into the army those of the latter class were about one-third or nearly one-half an inch shorter, weighed three or four pounds less, were far more prone to dental caries than those of the former class. Nine per cent. more were rejected as unfit for the army and they are generally inferior. The mortality in the first year of life, during which time the statistics were kept, was five times as great for those not nursed by the mothers as those who were breast-fed. A division was also made of children nursed for a varying number of months and in every one the size, weight and health was better for those nursed longest.

So in regard to gonorrhea and syphilis. Prudery here seems to be declining and people are discussing these subjects in Germany and France. I saw in France a demonstration to a class of young girls of the sexual organs of two cadavers. As every physician knows there is a new departure in our knowledge of gonorrhea. It used to be thought that it was rather mild, and it is, perhaps, more or less so in men, but the new fact about gonorrhea is that in the opinion of the experts who write the books, when it once gets into the system of a woman it never gets out and it is about the most dreadful thing that can befall her. There is this interesting fact that according to an article by Duncan 80 per cent. of all the cases of women sterile for ten years he believes due to some kind of gonorrheal infection. It seems to occlude the ovarian tubes and seems to affect also the ripening of the ovum and strikes at the very root of that most precious thing in all this world, the power to transmit the sacred spark of life.

In regard to syphilis we have some appalling statistics, showing that in New York nearly one in ten who had reached thirty years of age has had syphilitic infection, while in Berlin it is one in four. There may be as good a motive to try to check the great black plague as the great white plague. That which impressed me in the book referred to is that knowledge of the fact that there are such horrible diseases abroad in the world is calculated to rather take the charm out of the noblest sentiment of the race—love, and make the sexes turn to each other with a little less of that healthful interest which is essential to the welfare of the race. It seems to me that these things which are well-established truths ought to be taught. Professor Krouse, of the University of Berlin, edits a publication called by a long Greek word, the

translation of which is smut and is indescribably horrible and obscene. There is shown a source of infection that some of us do not realize. When I was about ten years of age I was changed from a country school to another. The school I left was about as vile as it was possible for it to be, and the other absolutely free of such contamination. The fact that children fill their minds with all kinds of obscenity gives some justification for those who say it is best to teach something about sex. The scholars should be taught early, before puberty and talked to in a plain, direct and personal manner. The one great fact which it is well to begin with is heredity, what it is, and what it means. Children should be taught that we are all branches on the same family tree, that we are all blood relations, that all that is good in us is due to the generations passed, and that the future depends upon the restraint and the sentiment of honor among young men and young women. It is a noble theme and those of you who have read that interesting book, of Northcote's, "Sex and Religion" will realize that there is a point where the work of the doctor and that of the religious teacher come together with great profit, the medical facts giving great force to the religious teaching.

Dr. Helen C. Putman, Providence, R. I.

So much ground has been gone over in the papers that it is difficult to select from the many important points for further discussion. I will speak of two in particular, the school's influence on health, and their teaching of the origin of life.

One topic refers to the overcrowding of the girl's mind in school, tacitly assuming that there is overcrowding. Certainly anything overdone is a mistake, but my personal experience is that ill health among pupils is far less often due to the school than to the home; far less due to mental overwork than to violation of known principles in dietetics, sleep and exercise.

Out of 1,000 records of girl students accumulated in my practice only 9 seemed to me to need reduction of mental work.¹ *Alteration* of school programs would doubtless be an advantage, substituting for some of the sedentary book work, laboratory and manual exercises. The sanitation of the school-room itself is usually poor. Education should be coordinated much more effectively with life, and homes should better supplement the school. For 99 of these pupils I usually needed to rearrange (try to) home habits, particularly the food, its quality, preparation, frequency. Next to food, hours of sleep needed attention. Music practice and social affairs often needed to be replaced by out-of-door life. Open windows at night, cooler rooms, habits of bathing and dressing were some of the other details.

Education for women, so-called "higher education" in certain lines, never was more needed in the world's history. It is only part of woman's mission to bear healthy children. It is equally important that they be well reared.

¹ Acute illnesses requiring temporary interruption of school are not included.

Above all she needs more knowledge of household and public sanitation and of personal hygiene, knowledge of the physics, chemistry and biology of daily living.

In a few of the schools where "domestic science" is taught when home nursing is studied contagious diseases are discussed. Along with diphtheria and other contagions, syphilis and gonorrhea are mentioned, not discriminating between the morals of victims of any of the contagions. The word "venereal" is not used. Pupils are told why and how contagions are to be avoided, including the avoidance of use in common of drinking cups, towels, public toilets, and the danger of personal contact. These precautions are as essential for scarlet fever as for syphilis. There is no embarrassment. *There is no teaching of evil.* It is simple scientific instruction in the prevention of our commonest contagious diseases. Physicians should attain this attitude of mind and should earnestly support this beginning of popular instruction.

It is three years since the Academy appointed a Committee to Investigate the Teaching of Hygiene in Public Schools. In the latest published section of our report¹ an account is given of how reproduction is taught in a few of the schools visited in 18 of our most progressive cities. The origin of life is intensely interesting to every normal child. It can be taught wholesomely, intelligently and most profitably in public schools by *competent instructors*. Physicians must help to secure them. High schools are important but even more deserving of our best effort are grammar grades, beyond which nineteenth-twentieths of our poorer children never go. The present inferiority of standards for teachers in grammar schools is not right. Physicians in their own localities can do much to secure salaries that will hold instructors reasonably well trained in biologic subjects, either as special teachers or as supervisors of nature study.

Briefly outlined one school's method of teaching reproduction was as follows: The pupils were boys and girls from 13 to 16 years old. The instructor was a biologist ready for a Ph.D. degree, having classes in botany, zoology and physiology. First the multiplication of ameba and other unicellular animals was studied; next multi-cellular animals through invertebrates, tracing simply the evolution of reproductive organs parallel with the evolution of the digestive and circulatory systems. There is no logical and good reason why the study of either should be discriminated against. Then reproduction was traced through vertebrates including mammals.

The children followed it out in absolute simplicity and purity of thought. *No evil was taught*; but the truths of normal life. A talk on human sex relations based on Dr. Prince A. Morrow's "Social Diseases and Marriage" closed the year's work. Parents and children in no way saw any shock to conventionalities because the instruction began simply and developed gradually according to the evolutionary method of nature.

¹ The Bulletins of the Academy containing the three published sections are April, 1904, June, 1905, and April, 1906.

At the end of this school visiting I realized as never before what plastic material little children are in the hands of teachers. The development is so largely according to the guidance and example of adults that profound regret must be felt to find in so many cases our responsibilities so indifferently discharged.

Dr. George V. N. Dearborn, of Boston.

I think that the public and educators have heretofore looked at this problem entirely from a mistaken point of view, misjudging, more or less, the moral nature and common sense of the average child. My observations accord with the views of the speaker that the amount of vice which will come from acquaintance with this matter is grossly overestimated—it comes, when it comes at all, in quite other relations. People will not realize how naturally children will accept teaching in this direction until it is tried. In the Tufts Medical and Dental Schools I teach the physiology of reproduction, in mixed classes of cultured young women and young men and am continually surprised to see that there is absolutely no sign of embarrassment in discussing the most technical matters in regard to the sexual functions. Professor Hall has shown that the same is true of young children. The average girl of sixteen or eighteen knows practically nothing of gonorrhea or of syphilis. The boy knows something about gonorrhea, but he laughs at it, and syphilis he does not understand. Medical students until they come to the third or fourth year will treat both of these more or less as a joke. Some medical graduates, even, as shown by the latest information, do not realize how very serious these two infections are. The public needs education in these matters and concerning motherhood and the value of children as much as it needs anything in the world. It is unwomanly false modesty and unmanly prudery not to give to the public as fast as possible the momentous facts of this matter. I realize that it is a delicate subject to handle and I cannot say that such a system as that in vogue in some French schools, just described by President G. Stanley Hall, could be carried out fully in an American public school at the present time unopposed; but the medical profession must use its influence to work this in as part of the more elaborate medical inspection of the public schools which is surely on the way.

Dr. J. T. Searcy, Tuscaloosa, Ala.:

Anybody interested in sociology is interested in such subjects. I believe it was Professor Brooks, of Johns Hopkins, who wrote of the mental characteristics of the sexes. He took the ground, exhibited all through biology, particularly in the higher grades, that the female is the conservative element and the male the aggressive and progressive. The male goes out into the field of competition, therefore he is given to changes and variations, while the female remains conservative. The female naturally acquires or assumes that which is already established, while the male is given to varying. Woman

learns more readily than man, what is written, prescribed, customary; for that reason she is more observant of religion, precepts, habits, fashions, customs, etc.—because they are established methods. Girls learn what is prescribed in text-books more readily than boys, for the same reason, and because their brains mature earlier. When in education of the young, particularly of young adults, these natural characteristics are disregarded in the teaching and in the training, there is the tendency to harm the male and the female. We cannot try to make them alike by coeducation without making the men less manly and the women less womanly.

Regarding the question of whether young children ought to be taught sexual matters or not, we all know that the sexual appetite exists, and the appetency of the sexes, one for the other, prevails everywhere. Larger school children are interested in these things because they are human beings—they have the appetite and the appetency naturally—and should receive proper instruction. The appetency of one sex for the other is always an interesting subject—the love-stories of fiction, the most abundant of all literature, attract universal interest for this reason. The young read them with avidity.

Principal A. L. Safford, of Beverly, Mass.:

It is not the conservatism of school boards or of superintendents of schools that hinders the teaching of sexual hygiene in the schools, but the conservatism of the community. I have been party to a number of efforts in this direction through the teachers in the schools and while I recognize some excellent results such as were pointed out by Dr. Putnam the sentiment of the community against it is hard to overcome. The medical profession is in a position to understand much better than I how the difficulty can be met. I believe it is possible to do some things through the medical inspector in the school; and, if a law could be passed compelling the medical inspector not only to diagnose any disease that is apparent to the teacher but to examine every child at stated periods with reference to its physical condition, including the condition of the sexual organs, much good would be accomplished. This seems like a radical suggestion and apparently would not be approved by some present, but a case of which I have knowledge at the present is causing a good deal of trouble. Although there is a strong suspicion that a venereal disease exists, dangerous to other pupils, the medical inspector does not feel that it is prudent to make an examination of the sexual organs without the consent of the parents. No reports of venereal diseases are made to the Board of Health in our city. The question is a live one in which school authorities are much interested but the general public will not allow them to handle it, except in indirect ways as in the teaching of biology as pointed out by Dr. Putnam. I recognize the difficulty and delicacy of the whole matter, yet I believe the present situation is deplorable and highly dangerous to the coming generations.

Dr. Daniel T. Nelson, of Chicago :

Some years ago it was my privilege to teach physiology in one of our medical schools. While doing that one of the teachers in one of our larger grammar schools asked me as his family physician if I would not go into some of the higher rooms and give the students some ideas of scientific physiology as it might or might not apply to generation, coming up to it through nature study, for he knew I was doing some of that work in the medical school. I was obliged to learn something of it myself in order to teach it and that we all know is one of the great gains we secure in teaching. I had in my backyard some squash vines growing, with of course both male and female flowers, but they did not bear; there were no bees to carry the pollen. I then played bee and carried the pollen and the result was abundant fruitage. I then studied the pollen under the microscope and it was wonderful to see the process of procreation there in the vegetable field. In the same way we may go to the animal field, beginning as soon as the child knows enough to comprehend what he is told. In the public school it is the duty of the State to have such teaching begin there. But the school books on physiology have omitted the principles of generation. And this is the great wonder of the world—what is life, where does it come from, how is it transmitted? Children will be greatly interested in it and they can be taught without injury to their morality and with the saving of them from the dangers of immorality, if the beginning is made with the flower and plant and they are led up through the lower animals; and when the noblest—man—is reached, the teaching should not cease. It was my privilege to have a short conversation sometime ago with President Harper and I said to him, "I come here to your university to be told of the laws of the United States of physics, etc., etc., but where is the department which will teach me how to improve the race of man?" Begin with the younger children, go on as they are able to understand to the high school and as you are going you will naturally enough when you teach physiology tumble over into pathology and that will bring up the whole subject. When the parents understand the matter they will aid you all they can.

Dr. Woods Hutchinson, Arrowhead Springs, Cal. :

Why do we not put more of these beautiful ideas into practice? We are all agreed upon what ought to be done. Eleven years ago we agreed that sexual hygiene should be taught in the public schools, yet little has been done. Here we are, presumably, one of the best instructed companies in the United States upon the subject, meeting in a room unlighted, miserably ventilated and which we would promptly condemn for any other public purpose. I am not blaming the committee, because the moment we get in here we proceed to so arrange the seats that we have to face the light and try to ventilate the room by opening the windows at the bottom. We talk about these things

and then go home and submit to any kind of old school-room, any kind of old instruction and any kind of hours. The main part of the children's education is out of the school-room. The American home is the best place for getting a boy educated in the world, and the American mother is the best mother in the world. If I had to choose for my child between a schoolhouse without any playground and a playground without any schoolhouse I would take the playground every time. We ought to recognize and insist upon the public recognizing that instead of having a dual personality that we are dealing with an absolute unit and that we cannot do anything which will benefit the physical without benefitting the mental and *vice versa*. The rooms should be large. There should be proper arrangements for play. No child should take any books home to study. Home study ought not to be tolerated. A child kept in an atmosphere, like this room, for instance, for one hour cannot escape having injury.

The same thing applies to the matter of sexual hygiene. We allow the prudery of the community to deflect us from what we know to be our duty to the coming generation.

Dr. Albert G. Hurd, Milbury, Mass.:

I think the teacher, the parents and the physician should coöperate in the instruction of the younger children. Every one of us has probably been asked "when and what shall I teach my child in regard to his physical being?" My advice to such parents is that when the child asks questions—and every normal child will ask questions—then is your time to tell him. If he finds he can get information from his mother and father he will seek information there instead of going to worse places.

Dr. Harley J. Stacey, Leavenworth, Kan.:

The difficulty which we have in the middle West is to get the teachers who can handle the sexual teaching the children should have in any kind of scientific way. When you can find a woman teacher or a man who for from \$60 to \$80 a month can handle such matters in a manner which is acceptable, you have something that does not grow in the middle West. If you gentlemen of the American Academy of Medicine would start a University Extension Lecture Course we might derive more benefit from that than from any other source; in that case, the teachers would be specialists, trained in that work.

Dr. Edward H. M. Sell, Summit, N. J.:

We used to have seven fathers of this Academy. The fathers were present at the organization of the Academy in the Centennial Year in Philadelphia. Six of the fathers have died, so I am the last of the fathers. I see fathers before me who are apparently as old, notwithstanding. No one else has

spoken of this subject and I therefore rise to congratulate the Academy. Away back in '76 and along toward the 80s we were a handful and we were infants—we had to be taught. We crept and then walked and now we approach a thousand. I congratulate the Academy upon such papers as we have listened to this morning and upon such discussions. You have indeed entered upon large manhood in the society and you have problems before you that will take much time to perfect. One gentleman spoke in reference to teaching his own children. I taught school when I was sixteen for three terms successively and again after graduating from literary institutions. I have taken my family from the metropolis of this Western Hemisphere into New Jersey and now I have turned school-teacher again to a boy of eleven. My boy of nine is taught by his mother and we can teach them just such things as we desire. We are not obstructed by boards of education or superintendents and we can make just such rules as we please. We have two acres of land and a very large garden and at any time we can adjourn education from books to the outdoor life.

One of the gentlemen spoke in reference to the law in Berlin. Some of you may be afraid that such a law will be passed in the United States. In some instances I think the mother should not nurse her child, if she could. In a practice of forty years I have seen the attempt made and succeed for a while, sometimes to the detriment of the child; sometimes to the detriment of the mother, who, through wrong living, came to be a physical wreck. For such mothers it is a blessing as also for their offspring if they do not nurse their children.

Dr. S. A. Knopf (closes):

I wish to express my appreciation of the kindly way in which my paper has been received. There were many points in it which I had to omit, owing to lack of time.

In regard to the nursing of the child, I still maintain that it is a matter of physical education and good will, that a mother who wishes to nurse her child can do so in the majority of cases. It should not, however, be undertaken if the family physician is opposed to it. If the mother is tuberculous I always object. When there is lack of development of the mamilla the feeding should be supplemented by the so-called artificial feeding and the result will invariably be good.

In the matter of coeducation I have had some personal experience. I spent several years in a higher college where there was coeducation and I am sure that the presence of the girls had a soothing influence on the boys rather beneficial than otherwise. I do not know how it is in larger institutions.

There must be coöperation, not only between physician and educator but between family and teacher. The so-called mothers' clubs where the teachers invite the mothers to come and meet in the evening should be encouraged

everywhere. Clubs to which the fathers are invited are equally good. Only by such coöperation between the health board and school board, family and family physician can we educate the young in sexual hygiene, rational physiology and embryology and attain the ideal for which we are striving.

Dr. M. P. E. Groszmann (closes):

Every mistake made in educational and physiologic matters reflects itself in the life of the children and produces defectiveness somewhere, and consequently the treatment of defectiveness consists largely in following up these causes, explaining them and trying to remove them as far as possible. In my paper, I have not been able to call attention fully to the influence of different periods of the child's life; for instance, the fatigue period, between eight and nine, the period of puberty, which is particularly fraught with danger, as Dr. Hall has shown. The latter period is a time when children very frequently switch off into degeneracy and crime if not properly handled. The difficulties and problems are manifold and we can only touch upon a few in a discussion like this. It is absolutely necessary that there should be a full understanding of each case and that physician and parent coöperate with the educator. If physicians, as has been said, have not succeeded in developing their ideas in the form of practical educational results it is largely because they have kept aloof from Boards of Education and from coöperation with the educators. There must be this coöperation. In regard to another matter touched upon in this discussion, I have taken the opportunity of weighing the books which school children in New York City are obliged to take home, or are allowed to take home, which is not exactly the same thing, and I have found that girls of from ten to thirteen are carrying burdens of from ten to fifteen pounds of books home.

Dr. Casey A. Wood, of Chicago (closes):

While we may talk of that ideal time when the physician will be appointed to exercise supervision over a community which will pay him, I think we shall not see that time soon. We should, however, have some such practical method of examining the eyes of school children as I have mentioned. By these means it may be decided whether or not the child has any eye or ear defect that will require a further medical examination.

I lecture to a rather large "mixed" class of mixed students and I always take the opportunity early in the session to sit down hard upon that old joke about trivial character of "a dose" of gonorrhea. I show that it is the duty of every medical student to know that it is not the funny thing he may have thought. There is no more practical way of teaching this than by drawing students' attention to the fact that even now, in these days of popular hygiene, one-third of all blind people are blind on account of gonorrhea. They should be taught that during the process of parturition the eyes may become infected

by gonorrheal germs, that complete blindness may ensue and the child eventually find its way into the blind asylum.

Dr. W. T. Smith, of Hanover, N. H. (closes):

My subject was "Coeducation," and while I do not favor coeducation for reasons which Dr. Hall has stated better than I can, I do believe in the higher education of women. The discussion has included one subject which I did not mention, that of gonorrhea. It has brought out the fact that many cases of sterility are due entirely to gonorrhea. President Hall mentions one authority which places them at 80 per cent. I think we are barking up the wrong tree when we ascribe all the cases of sterility and pelvic disorder and lack of development to overtaking in the educational period, when gonorrhea and various other excesses in puberty and various mismanagements in the home ought to bear a very much larger portion of the blame than education.

Dr. Augustus P. Clarke, Cambridge, Mass. (closing):

Since writing his paper he had read an abstract taken from a report made by one of our most distinguished American professors. It was in regard to the physiology of the girl and the boy, that is, that the boy grows the faster up to the age of twelve years and that after twelve or fifteen years the girl grows the faster, then from fifteen onward the boy's growth exceeds that of the girl. One reason no doubt why the boy grows faster before he reaches his twelfth year is from the fact that he has a freer range of activity than the girl usually has. The girl, however, between twelve and fifteen years finds less restraint than she does before she reaches the beginning of that period. After fifteen she feels that she is approaching womanhood and that she must submit to restraint again as is imposed upon her by the conventionalities of society. This has relation to her manner of dress which prohibits to a considerable extent her free exercise in sports. Her ways of living afterward thus become more mechanical and artificial and less natural than heretofore. Such observances on her part are usually forced upon her by the caprices of those who are desirous of keeping her under control. It should be remarked that as the girl's increased physical growth takes place between the ages of twelve and fifteen years, it is a period favorable to the development of her mental characteristics without prejudice to her physical well-being. This is the period in her life most favorable for the beginning of the study of modern languages, for learning the rudiments of art-work, and for entering upon the pursuit of experimental science. The early years of a girl's life, say from seven to seventeen, are really the best and it is the only period in which a girl can master successfully for speaking correctly and fluently a foreign modern language. While abroad, I have met several girls and young women who could speak six or more languages with great ease and fluency. These languages had all been begun in childhood. One lady in particular who had

never left her own country had not only acquired a complete mastering of English but several other languages as well. Her conversation and accent were charming. She could turn with the greatest ease and grace from the English and speak in Italian, French, or German, as I was assured by those who conversed in my presence with her. The gentlemen who engaged with her in conversation were recognized scholars of distinction and were representatives from their respective countries. The young ladies who could speak the several different languages appeared to be strong and not to have suffered from any breaking down from overstudy.

The studies that should be chosen for a girl to pursue should be such that her turn of mind can readily grasp and not be such that some recluse may select to teach merely to gain a living for himself.

The wearing of corsets and other such devices by girls for giving shape to the body has long been known to be injurious not only on account of the immediate paralyzing effect that they exercise upon the thoracic and abdominal organs but also on account of the serious reflex action they may excite upon the brain or central nervous system.

Another injurious factor has come into use; this consists in the habit of the girl of reading by magnifying glasses when the face is heavily veiled.

Speaking incidentally of conforming too strictly to the methods of routine practice, I might here mention that it is not many years since that the occurrence of gonorrheal inflammation in the female genital organs was often looked upon as being so serious as to demand extirpation of the uterine adnexa. Surgeons are now, however, becoming more conservative. I have seen many cases of that disease in which the appendages were involved and yet the patients have fully recovered without having to submit to such a surgical ordeal. Within a year I have had a case of labor which was perfectly natural and in which the child when born was free from disease and was well developed. The mother had previously suffered from gonorrheal inflammation involving the appendages. It was by accident, however, that she had not submitted before becoming pregnant to salpingo-oophorectomy. I mention these facts, as before intimated, to show that in the correction of any fault or in the relief of any trouble the physician should be guided by the individual circumstances and not by following the adoption of any hard and fast rules of procedure.

OBSERVATIONS IN PASSING.

The kind responses to many of the requests for material to enrich the pages of the Bulletin is thus publicly acknowledged. It is quite the habit of journals to announce in display type the good things in store for its readers. The Bulletin does not wish thus to blare its own trumpet, except to say that the prospects are that each number will contain articles of interest—thought-provoking and valuable—in addition to the papers read at the meetings and discussions thereon. It is hoped that the latest number will always be the best.

The readers of the Bulletin can aid in bringing this about. There is so usually the other side, that when there is none, it is the exception. The presentation of different concepts of a truth depending upon the view-point of the writer, if it be done in sincerity and impersonally, adds to the sum of human knowledge and secures a clearer ideation of the truth. Any of the articles printed in the Bulletin can be discussed just as readily in the pages of the Bulletin as on the floor of the Academy while in session, and our readers are invited to contribute to the discussion.

* * *

Some of the readers of the Bulletin preserve their files, and some of these have exchanged their unbound numbers for volumes bound in the Academy's standard binding. The price for binding is reduced materially by having a number of copies bound at the same time. Volume VI has never been bound; Volume VII is nearing its end. If any of our readers will care to exchange their unbound numbers for bound copies of each volume, let them write us to that effect. When it is known how many will be needed, an estimate will be obtained from the binder, and the price for exchange communicated by letter. There will be no obligation until the order is given after receiving this letter.

* * *

Should any desire to complete their files, there are duplicates of most numbers still in stock, and a few bound copies of the first

five volumes. The price for Volume I is ten dollars, and for the other volumes five dollars a copy, carriage prepaid.

* * *

Prof. B. I. Myers, of the University of Indiana, is reported in the official report of the Second Annual Conference of the Council on Medical Education of the American Medical Association, to have said :

I have heard this subject [Preliminary Education] discussed now for the third time—last fall at a meeting of the American Academy of Medicine, a short time ago at Pittsburg at a meeting of the Association of American Medical Colleges, and again to-day—and I feel that to-day's discussion has been by far the most free from prejudices. In discussions at the meeting of the American Academy of Medicine, the value of the A.B. degree was greatly over-emphasized. It was the degree and not the work represented by the degree that was the *sine qua non*. The fact that a course of study as outlined above represents a preparation for the study of medicine as good or better than presented by the ordinary A.B., in which a smattering of many things and a knowledge of no one thing has been acquired, was entirely overlooked. Discussions at the meetings of the Association of American Medical Colleges are too frequently colored by the interests of the school represented. Here work has been the requirement recommended as a preparation for medicine, and interests of schools have been subordinated to the advancement of medical education at large.

This is a very complimentary paragraph, and flattering to the vanity of those attending the conference. But should it not be better than the others, since several of the speakers were present at all three meetings?

But the paragraph is quoted to teach us a lesson, and to comment upon a statement that, as it reads, can convey a wrong impression. Prof. Myers is eligible to membership in the Academy, his criticism upon the discussion at the Academy meeting is not the captious opinion of the fox who viewed the grapes. There is a lesson to be learned from the statement.

But, turning to the discussion at the Chicago meeting, we find (1) that it was on a report of a committee who were to classify the A.B. degree from the various colleges by the *work represented*; (2) the discussion itself was largely participated in by those who were not members of the Academy, but invited to assist in the

discussion; and (3) the report submitted by the committee was framed after a consultation with many of the leading educators of the land, as to the character of the studies which should enter into the preparatory training for the medical course, and the praise of the course leading to the A.B. degree of our standard colleges was uniformly from the opinions of these educators. It is quite possible then that the professor wishing to put the high lights on his compliments to the Council, with artistic skill, placed the deeper shadows on the other meetings.

And yet, after all, if a medical student possesses an A.B. degree fairly earned from any one of our American colleges deserving the name, regardless of the studies pursued, is he not better prepared, not necessarily for a medical course in a university, but for the study of medicine than one who polls for preparation in these two-year special courses whose purpose is not to develop men but to fit them for entering a specified school of medicine?

LITERATURE NOTES.

REVIEWS.

ECZEMA: A CONSIDERATION OF ITS COURSE, DIAGNOSIS AND TREATMENT, ETC. BY SAMUEL HORTON BROWN, M.D. Philadelphia: P. Blakiston's Sons & Co. 1906. Price, \$1.00.

This little book of 100 pages gives a fair, though very brief, description of eczema in less than 29 pages. Internal treatment is then considered in 8 pages, and the next 53 pages are devoted to local treatment, upon which the writer evidently places most reliance. This portion is largely made up of prescriptions, spread out, with perhaps 20 pages of reading matter between; finally 10 pages are given to eczema seborrhoicum.

Undoubtedly, if one would seriously consider and rightly act upon the brief suggestions given as to the internal relations and causation of eczema, good results might follow. But the author emphasizes the local treatment of the disease so strongly that there is danger that the general practitioner will pass over the former, giving arsenic, as of yore, and try to cure by the local measures advised, an eruption whose very name (from *ἐκζω*,

to boil over) indicates so well that it is more than of local origin.

The local treatment, to which so much space is devoted, represents in the main a judicious line of practice which probably answers well in experienced hands: but there is a lack of definite instruction as to the use of the 146 prescriptions, which might lead to confusion. We notice also the absence of many combinations which are widely employed, indeed the author apparently gives mainly the treatment of Philadelphia dermatologists.

As a whole this little book presents a fair "arrangement of the common knowledge regarding eczema," as the author speaks of it in the preface; but from the meagre consideration of internal general treatment, with no reference to dietary or hygienic management, the general practitioner would make little headway in really curing chronic or serious cases if he were to depend upon it alone. It is attractively gotten up, and there are few typographical errors.

L. DUNCAN BULKLEY.

SECOND ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE FOR THE STUDY AND PREVENTION OF TUBERCULOSIS. February 1, 1904 to February 1, 1905.

Europe has no longer a monopoly of medical research work. Washington, New York, Chicago and Philadelphia have institutions endowed by American philanthropists, where the student and physician may study and do original work. Thus the second annual report of the Henry Phipps Institute for the study and prevention of tuberculosis represents a valuable contribution to the work done by men engaged in tuberculosis research (bacteriologists and pathologists) and tuberculo-therapeutists of the present age.

The first portion is devoted to an admirable review of the clinical and sociological work done by the hospital, dispensary and milk depot of the institute, written by Flick. The well-kept statistics of occupation, sociological conditions, alcohol habit of the patients are highly interesting and instructive. The clinical data are reported with equal care and exactness, as also are the results of the treatment. Next comes a tabulated report of 55 autopsies during the first year and 88 during the second year, by C. Y. White. Particularly interesting are the careful

observations made on the clinical and post-mortem condition of the heart by Norris, of the liver by Ullom, of the kidneys by J. J. Walsh, and brain and spinal cord by McCarty. The neurological and mental aspects of the tuberculous patient are enumerated and the conclusion arrived at is that the mental status of the consumptives varies with each individual, often corresponding to mental and neurological states present previous to the tuberculosis invasion. The laryngological work is reviewed reported by G. B. Harland. The experiments in immunizing and specific treatment in man, by Maragliano and Marmoreck are described by Ravenel. Then follows a careful review of recent investigations and observations upon the immunization of animals against tuberculosis by the pen of Prof. Leonard Pearson. His conclusions are quite sanguine for he thinks that absolute proof has been furnished that cattle may be rendered highly immune to tuberculosis by a process that is not harmful to them.

Five cases of tuberculosis in man were treated at the Phipps Institute with Maragliano's serum. The cases were watched by three different observers who had divided the cases among themselves. Here are their respective conclusions:

- (1 A) The serum does not by itself produce a gain in weight.
- (1 B) The serum had apparently no influence on cough or expectoration or the presence of tubercle bacilli.—*J. J. Walsh.*
- (2) As far as it is possible to judge from so limited an observation, the use of Maragliano serum is not indicated in cases of moderate or advanced degree.—*B. Stanton.*
- (3) The improvement in the temperature, pulse-rate, and respiration dated from the admission of the patient. It is hardly likely that the few injections, accompanied as they were by so much physical discomfort, contributed in any way toward the improvement in this case.—*H. R. M. Lamdis.*

The last chapter of the interesting volume gives a description of the Tuberculosis Exhibit of the St. Louis Exhibition, by Hatfield.

The whole report is well worth the careful persual and study, not only of the specialist in tuberculosis but the general practitioner as well.

S. A. KNOPP.

SECOND ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION
OF THE AMERICAN ASSOCIATION HELD IN CHICAGO, MAY 12, 1906.
Chicago: Press of the American Medical Association. 1906. pp. 76.

The longer one studies the scholastic side of medical education the more forcibly the necessity of formulating a scheme of study purely ideal, and then working to adjust the actual appears to the desirable.

The excellent papers to be found in this pamphlet show the many present obstacles to any really desirable scheme for medical education generally applicable, and is rich in suggesting plans to make the most generous coat to be obtainable from the amount of cloth at one's disposal.

The chairman in his opening address does indeed outline the ideal standard as adopted by the council to be:

a. Preliminary education sufficient to enable the candidate to enter our recognized universities, the passing upon such qualifications by the State authorities.

which, being paraphrased, a medical student's preliminary education ought to equal in amount that which his mate has who becomes a Freshman in the Academic department of the University.

b. A five-year medical course, the first year of which should be devoted to physics, chemistry, and biology, and such arrangements should be made that this year could be taken either in a school of liberal arts or in a medical school. Of the four years in pure medical work, the first two should be spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics and the specialties.

Except that it is English, we can see no reason for the added year as outlined. If the work in chemistry can be taken in a college of liberal arts, it can be given with better purpose and more effectively in such an institution. It were more ideal to place these subjects among the entrance requirements. The only other criticism on this paragraph is that no emphasis is placed upon didactic instruction. According to the scheme the teaching is in laboratory and clinic room—both necessary and essential—but a student also needs the broad generalization and philosophic presentation of the subject as is done in the didactic lecture.

c. A sixth year as an interne in a hospital or dispensary should then complete the medical course.

This being the goal toward which the Council is striving, its suggestion for present requirements is much less severe. These are open to fewer objections for they define the course which will qualify a medical student to come before any of our state boards of medical examiners.

Reference must be made to the report itself for the various carefully prepared tables classifying medical schools upon the results of the States-Board's examination of their graduates. If read understandingly they will convey much information, but they will be misleading unless care is taken.

In the report of the Council as presented by the assistant secretary may be found a very valuable table showing the variations in the requirements for taking the examination for licensure in the various states. It is worthy of careful study, since only by bringing some semblance of order into this chaos may we hope for better things.

The council also reports several other items of interest. It is entering upon its field of work with zeal and directing its efforts intelligently, and much good will be accomplished if it does nothing more than to educate those who are fortunate enough to receive its Bulletins. We cannot agree with it in its suggestions that the various states secure the legislation "that shall bring the standards of the state up to, *if not beyond*, the minimum standard adopted by the American Medical Association." The italics are ours. A great defect in our present medical legislation is the burden imposed upon the whole by some states going beyond in their requirements for licensure, as Proctor Miller so admirably shows in the January (1906) Bulletin of the University College of Medicine of Virginia.

If the states as they go beyond would only go in the same direction, it would not be so serious, but there are 32 points of the compass and these would likely to be exhausted before the going beyond of two states would coincide.

The Council discussed in turn the Relation of the State Examining Board to Medical Education; Preliminary Education;

Shall Advanced Standing Be Allowed to Graduates of Colleges of Liberal Arts? but nothing was said worthy of comment, it was the old straw rethressed—each side willing to be convinced, but failing to find any one to convince them. There is one feature in all these discussions wherever introduced, which can be explained only by acknowledging the truth of the oft-asserted commercial spirit of the medical schools. Here, as elsewhere, there have been those who insist that no time credit be given any one, no matter how well prepared; that all students should be required to attend four years in a medical college. There is only one valid reason for this—that the fees for four years be paid the medical school. The true educator is more interested in the development of his pupil than in the length of time he may, under his tuition and, incidentally, contribute to his income.

Under the topic, "Relation of the State Medical Society to Medical Education," Dr. J. W. Petit, of Illinois, is reported as saying:

I also believe that the provisions of such a law [to regulate the practice of medicine] should be as general as it is possible to make them.

It is hoped that all future attempts for medical legislation will be guided by the belief of Dr. Petit.

The last topic was upon the much-discussed medical curriculum, where again the ancient arguments were presented, clothed in new verbiage. We cannot help quoting with approval the following protest against the procustean-bed methods that now seem to be in the ascendancy. They are from the remarks of Prof. Dodson, of Chicago.

It must be remembered that we cannot drive a number of men through the same channels and get a uniform result. We want to secure men of power, with, of course, a certain amount and kind of information. You cannot get that by driving men, who are differently constituted, through the same channels. We need to take a lesson in this regard, as in several others, from the institutions of general learning, in which pedagogy has been studied more carefully than medical men have studied it.

* * * * *

In criticizing a curriculum of this sort, account must be taken of the time the student must spend outside of the college walls, because if he is to develop capacity for independent thought and work he must spend a good deal

of time in reading and reflection outside the classroom, and the time which he so utilizes is of as much if not of more importance than that which he spends on the benches or in the laboratory.

* * * * *

A few years ago the conclusion was reached in this country, that the licensing body and the teaching body should be separate. In almost all the states the matter of licensure is now distinct from that of securing a diploma. At present we are in danger of too much interference of the licensing board with the teaching bodies. It is the business of medical educators to study and experiment with methods, and we are feeling our way as to the best methods.

CHARLES MCINTIRE.

SHOULD ADVANCED STANDING AS REGARDS MEDICAL RESIDENCE BE GIVEN TO GRADUATES OF LITERARY COLLEGES, OR SHOULD FOUR YEARS OF MEDICAL RESIDENCE BE INVARIABLY REQUIRED? BY AUGUSTUS RAVOGLI, A.M., M.D., of Cincinnati, Ohio. Paper. Pages, 9.

This is a paper read by Dr. Ravogli before the Ohio Association of Medical Teachers, December 26, 1905. The answer to the question can be seen by quoting a few lines from a paragraph towards the end of the address:

What we wish to emphasize is that the four years of the medical curriculum are not to be touched. The four years of medical training have to be inviolable, and under no circumstances is a student to be privileged by shortening the medical course.

This does not mean that the author is in favor of a low standard of preliminary requirements for he writes earlier:

From the above consideration it results that an academic degree ought to be demanded as a requirement for admission in the medical colleges.

He recognizes the limitations of time, suggests the possibility of the continued course, and concludes that the shortening of the course should be in the literary college and not in the medical school, because of the legal requirements in some of the states.

Recognizing the fact that no medical college is doing justice to its students when it permits them to graduate with lower requirements than those specified by any state board, one is forced to agree with the author in his conclusions. At the same time one regrets that he did not protest against those laws which so arbitrarily fix standards by years and not by work done, impugning the ability of the teacher, and removing from him freedom

of action. The good things in life move by pendulum swings, with an actual advance in each recurring movement. This is the only comforting thought when one considers the present mechanical and inelastic requirements in many of our state laws.

CHARLES MCINTIRE.

BIENNIAL REPORT OF THE DEPARTMENT OF HEALTH OF THE CITY OF CHICAGO FOR THE YEARS 1904-1905. BY CHARLES J. WHALEN, M.D., Commissioner of Health, Chicago, 1906. pp. 368.

There is a tone of optimism in this report which seems to have a just foundation in the various statistical tables published. Thus in 1875 the average age of the decedents was 16 years, 2 months and 12 days; in 1905, 31 years, 10 months. The work of a present-day city board of health can be seen from the following, taken from the summary of the commissioner:

Instead of safe-guarding the people from a few contagious diseases it now strives to supervise all sources from which life may be endangered. It runs an Isolation Hospital; it gives to the poor serum to combat diphtheria, it makes war tooth and nail on all sources through which typhoid fever, tuberculosis and similar diseases are disseminated, with as much vigor as if they were smallpox or yellow fever. It provides physicians to the poor in certain cases; it runs a modern laboratory and makes analyses for all physicians free of charge; it inspects tenement houses for all unsanitary conditions; it inspects all the milk and ice brought into the city; it inspects the fruit, meat and fish consumed in the city; it inspects and vaccinates the school children; it disinfects all places where contagion has existed; and gives free baths to all who apply.

The report gives in detail the work done under the various departments supervising these activities, and illustrates again the closeness of general sociology to medical science, and the necessity of careful study of the medical aspect of social questions by physicians.

McClure's magazine, with commendable purpose, publishes an article in its August number on "Cancer—Can It Be Cured?" The days are passed when medicine can be shrouded in mystery (for which we are thankful), and the public should be made ac-

quainted with accurate information concerning disease and diseases. Whatever may be the cause, it is unfortunate that so commendable a purpose results in so harmful an article. According to a very excellent authority it is "based on absolutely wrong premises and a very puerile attempt is made to erect a method of treatment upon a theory which is utterly inadequate and upon two cases, neither of which has been really proven successful."

In "The Influence of the Menstrual Function on Certain Diseases of the Skin" (Rebman Company, New York),¹ Dr. L. Duncan Bulkley brings out a digest of clinical observations and related theories in a handy and readable little volume of about 100 pages. Aside from the fact that the work is a valuable contribution to the study of some aspects of the skin affections to which certain women seem to be liable at the menstrual period, it is an admirable emphasis upon the need of keeping before the profession, with its growing tendency to isolate the specialties, the fact that the constitution of the body is that of a harmonious and interdependent system of organs, each of whose functions is the complement of all the others; the derangement of one reflected in all the others; cause in one productive of effect in another, perhaps the most remote. The book is far more important to general medicine than it is to dermatology. In fact its dermatological significance is only secondary, so forcible is the author's presentation of the rights of the general system to consideration. This appears on perusal even of the table of contents from which we abstract illustrative lines: "Menstruation, the culmination of cyclic changes in the system. . . Systemic changes during the menstrual cycle. . . Changes in the urea, temperature, weight of body, etc. . . Changes in the thyroid gland. . . Changes in the blood. . . Changes in the nervous system. Functional disturbances at puberty and at the menopause. . . Most plausible theories as to the influence of menstruation: (1)

¹ "The Influence of the Menstrual Function on Certain Diseases of the Skin," by L. Duncan Bulkley, A.M., M.D. New York: Rebman Company. 118 pp. Price, \$1.00.

Cyclic changes in the general system; (2) Auto-intoxication of genital origin; (3) Nervous reflex irritation from congested genital apparatus. Treatment: Local treatment of skin lesion often ineffective; Functional disorders of many different organs contribute to the effect; Effective treatment must be based on broad medical principles." A short introduction takes up the "General Considerations" which give us the key to the deductions which we find in the chapter on treatment—"the menstrual influence is exhibited in certain diseases of the skin because there are faults in the life processes of the economy which are intensified by the 'cyclic changes' which culminate at menstruation, and by the nervous irritability produced by the congested reproductive organs. These errors of function belong to a number of different organs, or to an associated disturbance of several of them. * * In approaching a case exhibiting menstrual influences in any disease of the skin we must, therefore, take a very broad view of the subject. * * * Careful study demonstrates that there are many causes which must be searched out and rectified in order to obtain satisfactory results." The outlook for effective advance in the science of applied medicine is bright when our specialists take this broad view of domains heretofore considered safe from intrusion. Dr. Bulkley has arranged his clinical material so as to give the pith of pertinence without adding cumbersome and wearying detail. There is a lucid: "Analysis of Facts and Theories," and a very complete index.

HENRY P. NEWMAN.

BULLETIN OF YALE UNIVERSITY. June, 1906. President's Report.

From the report of Dean Smith, of the medical department, we learn that fewer graduates of Yale College are to be found in the medical department. "The cause of the decrease may be in part that the Yale school is relatively less attractive than it was a few years ago, owing to the rapid material development of many other schools, but there are doubtless other reasons."

To stop this decrease, a joint committee of the academic and medical faculties devised a system of electives, which permits the

M.D. degree to be given two years after the bestowal of the A.B. degree. Commenting on this combined course, the Dean says :

That a combined course of six years leading to both degrees is thus established here must not be taken as indicating that either of the faculties would urge all students to shorten their university training to six years. It should rather be regarded as an opportunity offered to students who by reason of their preference for scientific studies, or who by reason of the pressure of circumstances decide to begin their professional work early. It is hoped that many who can do so will still continue to give themselves the benefit of the wider academic training, but it is believed that many who might otherwise go directly into their professional courses from the preparatory school will prefer to take the six years' course and thus have the advantage of a four years' college residence.

What a sorry confession ! What a bid for students ! In order to help its medical department, Yale is willing to give its first degree to some upon two years' study in the academic department, for many state laws require a four years' course in a medical school. The plea that many other universities are doing this is the old excuse for wrong doing—she will get what she is bidding for, while the full course men will go to Johns Hopkins and other schools which recognize the true value of a preliminary training.

We are in receipt of a stray copy of the *Quarterly Journal of Inebriety* for the summer of 1906. It is the first copy coming under our notice since the change in the office of publication. The size of the page and the general appearance has been changed, but it continues to maintain an interesting table of contents. The cover is adorned with a half-tone portrait of the late Dr. Noah S. Davis.

AMONG OUR EXCHANGES.

THE HOSPITAL PROBLEM. *Jour. A. M. A.*, Ag. 4.

Dr. Bayard Holmes, of Chicago, writes that the hospital is an increment in the advances of civilization. The tendency is to specialize our activities, and no longer does the household manufacture all the clothing nor prepare all the food, so, in like manner, the care of the sick is receiving the specialized attention of the hospital.

From a purely economic and social point of view the hospital is as necessary as the bake shop. It gives a maximum of skill with a minimum of expenditure. It allows the standard of life, as far as medical services are concerned, to rise to the maximum level. From the economic point of view, the hospital is a success, and the employing class may find it to require a less expenditure to build hospitals than to provide wages to pay for medical attendance in the home.

The character of the hospital is determined by the motive of its management. Their prime function is rather to relieve suffering than to restore to health and usefulness, so that frequently little attention is paid to post-operative gymnastics and hydropathic methods.

The management and influence of the hospital is of the greatest importance to the profession. The honors and emoluments of the individual physician depends on the ability, integrity and character of its most favored members. The members of a hospital staff, though serving without pay, are among the favored members, and may receive abundant advertising through those who may be adherents to or supporters of the hospital, especially if it be founded by some religious society.

The medical profession, as a whole, is entitled to some returns for the gratuitous service rendered. Such service is not rendered, to the same extent at least, by any other class in the community. Some hospitals fail to repay this debt to the profession. The wards are closed to medical instruction, the clinics hedged about, scientific work is hampered, and the medical staff denied the authority its responsibilities demand. Even in the semipublic pay hospitals the medical staff fails to attempt to repay their debt for their peculiar advantages. It is suggested that the staff of public hospitals should be appointed by the profession, and have an oversight of its management, especially in the matter of fees. A hospital appointment should be a professional trust—personal ambition for personal aggrandizement is inconsistent with the best interests of the profession.

THE SOCIOLOGICAL ASPECTS OF GONOCOCCUS INFECTION. BY PRINCE A. MORROW, M.D. New York. *Am. Jour. of Surgery*, August, 1906.

Dr. Morrow calls attention to the well-known fact of the origin of a large proportion of the pelvic inflammation of women. He then calls attention to its important relations with conjugal productivity. About 50 per cent. of all sterility is due to this cause. There is also the danger of blindness from ophthalmia neonatorum. Even when the Cr  d   method of prophylaxis is employed, as many of 25 cases to 1,000 births were reported in Breslau as late as 1898. Then there is the accidental infection which may occur in family life.

Dr Morrow concludes:

Such are some of the undeniable and scientifically demonstrated dangers of gonococcus infection introduced into married life. Certainly no more important sociological problem can engage our attention than the prophylaxis or cure of an infection which smites at the very root of nature's process for the perpetuation of life!

What I have to say here concerning general prophylaxis may be summarized in the following propositions:

No communicable disease which is spread in the ordinary relations of family and social life can be controlled without the co  peration of the public.

The first and most essential condition of any intelligent scheme of prophylaxis of communicable disease is the general dissemination of knowledge among the public as to its extent and its dangers both to the individual and to society.

The more the spread of an infectious disease is independent of environmental conditions, the more individual and especially the more voluntary the agency, the more necessary is this enlightenment.

The public cannot give an intelligent and efficient co  peration in the prophylaxis of venereal infection without knowledge of the laws of its contagion—not only the modes by which contagion is effected, but also the duration of the contagious activity. In other words, all real progress toward the prophylaxis of venereal infection must come through enlightenment of the public.

SOME NEEDS OF PRELIMINARY MEDICAL EDUCATION. Editorial article. *Internal Jour. of Surgery*, September, 1906.

While there is every reason to feel gratified at the substantial progress that has been made in our medical colleges, the writer sees chances for improvement. Primarily, the function of the medical school is to fit men to practise medicine—for this too much attention has been paid to laboratory work, even to the

extent of encouraging scientific research on the part of the undergraduate.

Medical colleges would do well to reinforce their courses by devoting more time to (1) emergency medicine and surgery, and (2) professional economics and customs.

PROFESSIONAL CIRCUMSPECTION. BY ELLWOOD OLIVER, M.D., *Albany Med. Annals*, September, 1906.

Dr. Oliver, in addressing the Columbia County District Society at its Centennial Anniversary, calls "attention to certain things that you, with your larger mind, may broaden and add to the same for our mutual benefit." The propositions only are quoted, and not their elaboration.

"*First*—Hide bound, fossilized orthodoxy is untenable."

"*Second*—We should no longer hold medicine a mystery, but we should take mankind into our confidence and strive to educate the masses along the lines of truth as we know it."

"*Third*—With every patient that comes under our observation, we should, regardless of anything, always exercise deliberate care and honest candor."

"*Fourth*—Within our own body, self-interest, misrepresentation, sectarian dissension; individual or collective antagonism; ridicule or derision; unjust, unnecessary or malicious criticism, are the height of folly."

"Finally, we must never lose sight of the dual nature of man" (*i. e.*, that he has a spiritual as well as a physical nature).

ACKNOWLEDGMENTS.

[It is intended to acknowledge all publications received since the previous issue, that are not otherwise mentioned in this number. The present list, however, is for publications received from July 21 to September 20 inclusive.]

This notice will be considered a full return for the courtesy of sending us the publication. Additional notices and reviews will be made, depending upon the space available, and for the best interest of our readers as judged by the management. Publications treating of medico-social questions will be given precedence.

BOOKS.

A COMPEND OF MATERIA MEDICA AND THERAPEUTICS AND PRESCRIPTION WRITING. BY SAMUEL O. POTTER, M.D., M.R.C.P., London. 7th Edition. Revised and Enlarged. Philadelphia: P. Blakiston's Son & Co. 1906. pp. 292. Price, \$1.00.

REPORT OF THE COMMISSIONER OF EDUCATION, 1904. 2 vols. Washington Government Printing Office.

STATE OF NEW YORK, ANNUAL REPORT OF EDUCATION DEPARTMENT, 1906. Albany, 1906.

XX ANNUAL REPORT OF THE COMMISSIONER OF LABOR, 1905. Convict Labor. Washington Government Printing Office.

PHILADELPHIA HOSPITAL REPORTS. Vol. VI. 1905.

XXXVI REGISTRATION REPORT. Michigan vital Statistics. 1902. pp. 212.

HISTORIC NOTES AND CANADIAN MEDICAL LORE; LECTURE MEMORANDA B.M.A. Toronto. 1906. London, England: Borroughs, Wellcome & Co.

A NON-SURGICAL TREATISE ON THE DISEASES OF THE PROSTATE GLAND AND ADNEXA. BY GEORGE WHITFIELD OVERALL, A.B., M.D. Chicago: Rowe Publishing Co. 1906. pp. 228.

ON THE RELATION OF THE DISEASES OF THE SKIN TO INTERNAL DISORDERS. BY L. DUNCAN BULKLEY, A.M., M.D. New York: Rebman Company. pp. 192. Price, \$1.50.

INSTITUTIONS OF LEARNING.

Arkansas, Univ. of Med. Dpt., Catalog, 1905-6. *California*, St. Ignatius Coll., Prospectus, 1905-6; Univ. of, Bull. VIII, 1, Med. Dpt., announcement of courses, 1905-6. *Colorado*, Colorado Coll. publications, May, Gen. Series, No. 22. *Connecticut*, Bull. Yale Univ., 2d series 7, 9. *District of Columbia*, Georgetown Univ. publications, 3d series, 2. *Illinois*, Dearborn Med. Coll., 1906-7; Hahnemann Med. Coll., register and circular of information, 1906-7; Herring Med. Coll., XV annual announcement; Illinois Med. Coll., XIII annual announcement; Northwestern Univ., Bull. for Sept. 1906; Univ. of Ill., Med. Dpt., annual announcement, 1906-7. *Iowa*, Drake Univ., Bull. X, 3. *Kentucky*, Louisville Med. Coll., XXXVIII annual announcement. *Louisiana*, State Univ., catalog, 1906. *Maryland*, Coll. of Phys. and Surg., 1906-7; Maryland Med. Coll., catalog, 1905-6. *Massachusetts*, Agricultural Coll., XLIII annual report. *Missouri*, Barnes Med. College, Bull. V, 1. *Nebraska*, Univ. of, Univ. Bull. series, XI, 1, 14; Bull. Coll. of Med., Vol. I, 3; Agricultural Expt. Station XIX annual report; Bull. No. 92; Press Bull. No. 22. *New York*, Columbia Univ., Bull. of Information, VI series, No. 23; Eclectic Med. Coll., announcement and catalog, 1906-7. *Syracuse* Univ. Bull., Series VI, 2. *Pennsylvania*, Medico-Chirurgical Coll., Bull., July; Phila. Polyclinic, announcement, 1906-7. *Tennessee*, Grant Univ., The Univ. Lookout, Series V, 1. *Virginia* Med. Coll. of, Bull. III, 2. *Canada*, Queen's Univ., Med. Quarterly, III, 4.

EXCHANGES.

California, State Jour. of Med., June, July; Pacific Med. Monthly, May-June, July, Aug.; So. Calif. Pract., Aug., Sept. *Colorado*, Col. Medicine, July; Col. Med. Jour., June, July, Aug. *Connecticut*, Bull. State B'd of Health, June, July, Aug.; N. R. Med. Monthly, Aug., Sept. *District of Columbia*, Public Health Rep., July 20, 27, Aug. 3, 10, 17, 24, 31, Sept. 7, 14. *Georgia*, State B'd Jour., July, Sept. *Illinois*, Am. Jour. Clin. Med., July, Aug.; Chicago Clinic, July, Aug.; Chicago's Health, July 21, 28, Aug. 4, 11, 18, 25, Sept. 1, 8, 15; Jour. A. M. A., July 21, 28, Aug. 4, 11, 18, 25, Sept. 1, 8, 15. *Indiana*, Central State Monitor, Aug., Sept.; Ind. Bull. of Charities and Corrections, June, Aug.; Ind. State B'd of Health Bull., May, June, July. *Iowa*, Iowa Health Bull., July, Aug. *Kansas*, Jour. Kas. Med. Soc., Aug., Sept.; *Massachusetts*, Arch. of Physiological Therapy, July, Aug.; Annal of Gynecol. and Pediat., July, Aug.; Our Dumb Animals, July, Aug. *Michigan*, Detroit Med. Jour., July, Aug.; Medical Age, July 25, Aug. 10, 25, Sept. 10; Bull. of Vital Statistics, June, July; Univ. Homeo. Observer, July. *Minnesota*, St. Paul Med. Jour., Aug. Sept. *Missouri*, Interstate Med. Jour., Aug., Sept.; Jour. State Med. Assoc., Aug., Sept.; Kansas City Med. Jour., July; Med. Brief, Aug., Sept.; St. Louis Courier of Med., Aug., Sept. *Nebraska*, Western Med. Rev., July, Aug. *New Jersey*, Jour. Med. Soc. of, Aug., Sept. *New York*, Albany Med. Annals, Aug., Sept.; Am. Jour. of Surgery, Aug., Sept.; Brooklyn Med. Jour., July, Aug.; Buffalo Med. Jour., Aug., Sept.; Charities, July 21, 28, Aug. 4, 11, 18, 25, Sept. 1, 8, 15; Critic and Guide, Aug., Sept.; Eclectic Review, Aug., Sept.; Internat. Jour. of Surgery, Aug., Sept.; Jour. Mental Pathology, No. 5; Literary Digest, July 21, 28, Aug. 4, 11, 18, 25, Sept. 1, 8, 15; McCall's, Sept.; Med. Exam. and Pract., July, Aug.; Med. Review of Reviews, July, Aug.; Municipal Jour. and Engineer, Aug. 1, 8, 15, 22, 29, Sept. 5, 12, 19; N. Y. Med. Jour., July 21, 28, Aug. 4, 11, 18, 25, Sept. 1, 8, 15; N. Y. State D'pt of Health, Bull., June, July; N. Y. State Jour. of Med., Aug., Sept.; Post-graduate, Aug., Sept.; Watson's Mag., Sept. *Ohio*, Cleveland Med. Jour., Aug., Sept.; Columbia Med. Jour., Aug.; Eclectic Med. Gleaner, Sept.; Eclectic Med. Jour., Aug., Sept.; Lancet-Clinic, July 21, 28, Aug. 4, 11, 18, 25, Sept. 1, 8, 15. *Pennsylvania*, Alumni Register, July; American Med., July-Aug.; Annals of Surgery, Aug., Sept.; Jour. Assoc. Military Surgeons, Aug.-Sept.; Med. Council, Aug., Sept.; Med. Notes and Queries, May-June; Monthly Cyclop. of Pract. Med., July, Aug.; Therapeutic Gazette, July, Aug. *Rhode Island*, Providence Med. Jour., Sept.; *Tennessee*, Southern Practitioner, Aug., Sept. *Virginia*, Hospital Bull., July; Med. Semi Monthly, July 27, Aug. 10, 24, Sept. 7. *Washington*, Northwest Medicine, July, Aug. Sept. *Wisconsin*, Med. Recorder, July, Aug. *Canada*, Le. Bull. Med. de Quebec, July, Aug.; Maritime Med. News, July, Aug. *England*, Brit. Med. Jour., July 21, 28, Aug. 4, 11, 18, 25, Sept. 1, 8, 15.

REPRINTS.

Collier's Methods Exposed—Editorial St. Louis Med. and Sur. Jour., Proposed Regulation of the Practice of Medicine and Surgery in Pennsylvania in the Eighteenth Century, by Charles Perry Fisher, Philadelphia; Puerperal Fever Treated by Uterovaginal Drainage, by A. Ernest Gallant, M.D., New York; The Position of the Atypical Child, by Waldemar Heinrich Grossmann, Plainfield, N. J.; Mysophobia, with Report of a Case, by John Punton, M.D., Kansas City, Mo.; (1) Should Advanced Standing as Regards Medical Residence Be Given to Graduates of Literary Colleges, or Should Four Years of Medical Residence Be Invariably Required, (2) One Year's Experience with the Local Application of Adrenalin in Disease of the Skin, (3) Valedictory Address, (4) Pemphigus Vegetans, (5) Syphilis in Relation to Crime, by A. Ravogli, M.D., Cincinnati.

MISCELLANEOUS.

Annual Report of the Library Com. of Phys., Philadelphia, 1905; McClure's Magazine, Aug.; Proc. Internat. Med. Assoc. of Mexico, 1906; 2nd Annual Conference of the Council on Med. Education of the A. M. A., May 12, 1906; Classified Sanitarium Directory of Eastern United States, compiled by G. L. Harrington.

BULLETIN

OF THE

American Academy of Medicine.

(Specializing in Medical Sociology.)

VOL. VII. ISSUED DECEMBER, 1906. NO. 10.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments expressed in any paper or article published in the BULLETIN.

LEADING ARTICLES.

THE ORGANIZATION OF THE MEDICAL PROFESSION.

It is an act of temerity for any one to suggest plans or methods for medical organization, local or general; the principles involved can be stated and illustrated with less difficulty. These may be deduced readily from a proper recognition of the gregarious element of character in all the higher order of animals, any special class of which having special destinies in life can herd together, and out of their environment, evolve methods of mutual protection and support, while working out under natural laws the fulfilment of their destiny in the general order or plan of creative intelligence and design.

Now, this destiny or *raison d'être* of the medical profession, its aims and purposes and place in the social order of mankind, has been more or less clearly, during the recorded history of medicine, declared and maintained. The enumeration of the requisite advantages and courses of preparation for acquiring the proper qualifications to enter the ranks of the medical profession, are given with great precision and clearness as early as the promulgation of the "Hippocratic Law," and enforced by the "Hippocratic Oath" of allegiance in the purification of it, and maintenance of a lofty character of altruism for it. And the most refined and better educated element to be found in the medical profession to-day assents to and, in their individual lives, illustrates these

high aims and purposes in their faithful, unselfish and pains-taking devotion to the peculiarly arduous duties of their calling.

To give direction and purpose to the individual effort; to consolidate and organize the many units of mental power or force of this profession, so as to bring united and coöperative action to bear in the uplifting of society, ministering unitedly to its relief, and bring into effective action the wonder-working forces of modern hygiene and modern practice of medicine to its greatest possible efficiency is the problem of proper medical organization.

This would, among other considerations, doubtless require an international Congress of the world's *savans* in the matter of international quarantine, and proper legislative restrictions of medical education and practice. This International Medical Congress meeting annually, as the World's Peace Congress does, at some permanent and convenient place of meeting, in a building of its own, established and maintained for its own purpose and end, might serve as a post-graduate school of the nations to study and propagate the entire system of international hygiene, and, in accomplishing its mission in this particular at the same time serve as an object lesson in planning for and organizing similar national and local institutions.

Looked at from this standpoint, could we not organize a National Congress of Public Hygiene, etc., having its local habitation and home in Washington City, with annual or more frequent meetings for the discussion of national quarantine, etc? And eventually secure a representative as such, as a political factor in national legislation with a seat at the Council Board of the Chief Executive? Surely a nation's wealth and prosperity should embrace in its assets a careful consideration of the normal, healthful fecundity of its people and the development of its chief power of defenses in a sturdy, strong and healthy race of men and women, developed in physical power, and in morals and intelligence, normally. State and municipal auxiliary bodies of the profession could be joined in somewhat similar fashion, and be in a way associated with the movement. In all these associations we should have a small modicum of the members of the legal and clerical professions—the best college-bred and tech-

nically trained men in these professions; also the similar class of those engaged in agricultural, commercial and manufacturing industries. How to select the material and arrange it, arranging the work for each association, assigning to its various officers and members their several duties, is the problem of all the problems involved.

In view of the fact, however, that there is and has been over sixty years or more a somewhat similar general institution pre-occupying the entire field of action in our country, and a large number of special organizations, more or less limited in area geographically, or for special professional needs, all the foregoing speculation may appear to be Utopian in the highest degree even if we could start *de novo*.

The obstacles of all existing societies out of the way, our general and local institutions of federal and state governments, purged of political corruption and administered by men of the requisite character of fitness for the business of state craft, it is doubtful if the best plan of organization even then could be outlined, except in a congress of the best medical talent assembled together in frequent, free and full conference and debate. Such a council would be in effect a *Witenagemote* of experts in sociology and the medical sciences. While the existing conditions do not permit the consummation of the ideal, it is far from folly to set it up, as thereby the profession can have an object to reach out after in its efforts to better the present organizations.

GEORGE COWAN.

THE NEW HARVARD MEDICAL BUILDINGS.

The dedication and opening of the new buildings of the Harvard Medical School have deservedly received much attention in the public press of the country, for they mark the culmination up to the present day in the growth of medical education in America. In these truly monumental structures, every convenience has been provided, and special facilities have been furnished for research as well as instruction; and here it is hoped preventive medicine may be advanced and the specially endowed student may find ample opportunity for the development of his faculties.

The present buildings are devoted chiefly to the laboratory side of medical work, but it is confidently expected that in the near future adequate facilities for clinical instruction will be provided adjacent to these buildings, and that the work and the medical staff of these new hospitals may be directly under the guidance of university representatives. Meanwhile the great hospitals of Boston are freely open to the students of the school and furnish abundant material for study.

Founded in 1782 at Cambridge, the Harvard Medical School was the third established in the United States and the first in New England. Thus in many ways its history may be taken as typical of that of the growth and development of medical education in America. The school originated as the outgrowth of a course of anatomical lectures given by Dr. John Warren under the auspices of the Boston Medical Society. Previously the physicians of Boston and vicinity had received their training from apprenticeship to a practitioner, followed in many instances by further study in Europe. This method, however, though presenting many advantages, lacked in providing for anatomical and chemical teaching and so it was deemed wise to introduce at Cambridge a course of study in medicine. In the beginning there were but three professorships—Dr. John Warren in Anatomy and Surgery, Dr. Benjamin Waterhouse in the Theory and Practice of Physic, and Dr. Aaron Dexter in Chemistry. At this time hospitals did not exist and no attempt was made to provide a carefully graded course of study.

In 1810 the school moved from Cambridge to Boston. Bedside instruction was provided and soon hospitals were established and the teaching force greatly augmented. In 1841 a graded course was outlined and the requirements for a degree carefully stipulated. In 1870, following the installation of President Eliot at Harvard, the school became an integral part of the University instead of a private enterprise under the shelter of the University, and to the efforts and inspiration of President Eliot, the school owes much of its present standing and reputation.

In 1883, in commemoration of the one hundredth anniversary of the founding of the school, a new building was dedicated in the

Back Bay District of Boston; and in this building facilities for laboratory instruction were provided and what was thought was every equipment for many years to come. In 1890, however, further room was needed and a wing was added to provide new laboratories for bacteriology and pathology. Only a few years more passed and the increasing demand for more practical and less didactic instruction soon demonstrated that the laboratories were wholly inadequate for the requirements and that new buildings must be provided. Therefore, in 1900 the first steps were taken which have resulted in the buildings of to-day.

These buildings are five in number surrounding three sides of an open court. The central one—the Administration Building—contains the necessary offices, several lecture-rooms, and the Warren Museum, which occupies the whole of the three upper floors and contains a most valuable and instructive collection of anatomical and pathological specimens. The other four buildings are for laboratory purposes and are constructed on the same general plan—each consisting of two large wings united by a median portion containing an amphitheatre below and a departmental library above for the common use of both wings.

The dedicatory exercises were held on two days. The first afternoon, September 25th, short addresses were made in the court-yard of the new buildings, followed by a reception and inspection. The second day was devoted to exercises of an academic character at Sanders Theatre in Cambridge, where noteworthy addresses were made by President Eliot, of Harvard, and by Professor Welch, of Johns Hopkins, and honorary degrees were bestowed upon a number of the distinguished guests.

The exercises were most brilliant and impressed all present that a new era was dawning in medical education and that the future would be marked by many advances in limiting the ravages of disease and broadening the horizon of scientific and preventive medicine.

THE FRIENDSHIP OF DR. NATHAN SMITH AND DR. LYMAN SPALDING.¹

BY DR. JAMES A. SPALDING, Portland, Maine.

The medical history of the United States has been well begun by Packard and Mumford. In each of these excellent monographs, however, are many lacunae awaiting the opportunity to be filled with proper facts. It should be the task of this Academy to make up for these existing deficiencies and there is no better way now open before us than to collect the individual deeds of men who were eminent in the profession in their days. The life of Nathan Smith has been well described in the before-named histories, and especially of his unique founding of three medical schools, namely at Dartmouth Yale and Bowdoin.

Personally, I had always been attracted to biography and some years ago I undertook from fragmentary papers to say something of the life of my grandfather, Lyman Spalding, but material was scant, and I had to be satisfied with a mere sketch showing that this ancestor of mine was industrious, and energetic, and that more ought to be known of him as the originator of the United States Pharmacopoeia.

What then must have been my delight when a few months ago, I came across a large mass of old letters written to him by medical men of his time (1796-1821) together with a few rough drafts of letters of his own to these same men. It is true that you cannot get an exact image of any personage from letters written to him, but they do undeniably give you a good idea of the man calling for answers such as these letters exhibit. From these letters then, I have been able to begin an interesting Life of my Grandfather, which shows him even more industrious and active than I had before supposed. They also reveal a series of medical friendships probably unequaled in those days when postage was dear. You had to think a great deal of a man to write him a letter which would cost you twenty-five cents to prepay.

I have never counted all of Dr. Spalding's correspondents but broadly speaking this collection includes letters from the prominent physicians of America from Eastport in Maine to the Island

¹ Read before the American Academy of Medicine at Boston, June, 1906.

of Trinidad; from Jenner, Baron Larry, Sir Robert Percival, and the Bells abroad. Thomas Jefferson and John Adams honored him with letters as did also Rush, Caldwell, Wistar and Samuel Mitchell, the founder of the Medical Repository and Senator from New York. Then we find numerous letters from the first George C. Shattuck, James Jackson and John C. Warren in Boston. DeWitt Clinton made him a Trustee of the New York University Hospital. More than any others extant, the letters from Dr. Nathan Smith open up new vistas of Dartmouth Medical School-history. In a bunch of unpublished letters from the various Trustees of the Fairfield Medical School in New York we get more information concerning that institution than is elsewhere accessible, while finally the numerous letters from Benjamin Waterhouse throw much light on the peculiar methods employed in introducing vaccination into America and especially New England.

I felt years ago that the reason why Lyman Spalding studied medicine at all, and so came to reside in Portsmouth and to be elected President at Fairfield, and became so well-known in Philadelphia that Benjamin Rush often mentioned his skill publicly in his lectures before the Pennsylvania school, was because Nathan Smith began practise in Cornish when my grandfather was young and so came under his influence. These were my thoughts, but I did not know the facts positively, until these old letters from Smith to Spalding were found, showing that these two men stood on terms of the greatest intimacy and friendship; life-long friends they were, as proved by Smith's letters, beginning in 1796 on his voyage to Europe and lasting long after he had established himself in New Haven at Yale Medical College, say to 1819, or '20, which are the last ones preserved. Ultimately, it is my intention to print the important letters from this collection. To-day let me merely make this preliminary report of an interesting *find*, and read abstracts from the letters of Nathan Smith to show his friendship for Lyman Spalding.

Before, however, doing even this, let me present in a much abbreviated form the chief incidents in the life of Spalding. Lyman Spalding was born in Cornish, N. H., 1775. Nathan

Smith settled there in 1786. The town was small, the chief families being the Spaldings and the Chases. Into the Chase family Smith married. No doubt as the only doctor in the village Smith was in and out of the Spalding house often, or he would stop and talk as he rode along on horseback. He probably noticed this smart boy and urged his father, the Colonel, for so Dyer Spalding was called from his military services, to send him to school. He attended the Charlestown Academy. As he grew older he assisted Smith in his office, and the two families became so closely connected that Smith had money from his father, and the son too, before he set out for Europe in 1796. Previous to this, young Spalding went to the Harvard Medical School in 1794, and graduated with honor in 1797. During parts of these three years he rode about in his practice with Nathan Smith, lived in Smith's house part of the time, and did his best to take care of such sick people as were willing to trust themselves to a young medical man who had not yet taken his degree. Smith left Boston in the Fall of '96, Spalding took his cases through the winter, in the Spring of '97 found a substitute, and went to Cambridge to take his degree. When Nathan Smith started the Dartmouth Medical School, what more natural than that he should choose as assistant his young friend, to whom he entrusted the lectures on Chemistry, while in lecture terms when Smith was unavoidably absent on distant consultations, Spalding attended to everything that was taught, together with Minor Surgery till Smith returned. Of course Nathan Smith did the lion's share, but he found his assistant a young man of whom the students and himself were very proud. After three courses of this sort of work the younger doctor had to think of his means of living, so established himself in Walpole, N. H., for a few months early in 1799, then journeyed to Portsmouth, the chief town in the state, and soon won for himself a good reputation as a physician and surgeon. The whole country was ringing in the year 1800 with the benefits of vaccination as a preventive against small-pox, and Dr. Spalding entered into its practice at once after a most interesting correspondence with Dr. Waterhouse, the most clamorous man in that line about that time. To young

Spalding belongs, so far as I can discover, the honor of being the first to demonstrate by public exhibition in America that after proper vaccination any one could be exposed, without fear, to the most malignant forms of the dread disease. The medical historians of America have so far asserted that on the 19th of August in 1802 vaccinated persons were first publicly exposed in small-pox hospitals, to small-pox patients at Noddle's island in Boston Harbor, but in my possession are the journals of the day dated August 4, 1801, showing that Lyman Spalding, M.D., proved in Portsmouth, N. H., at that date the preventive benefits of vaccination against the small-pox by exposing himself and ten vaccinated persons for eleven days to three small-pox patients in the Pest House. In the next year the yellow fever was abroad and Spalding publicly urged a house-to-house cleansing of the entire town, and was so energetic that he was unanimously chosen to the board of health and continued there many years. He early became a beautiful dissector, picked up subjects from everywhere about, and soon owned a museum of anatomic preparations which made him well-known over New England. He became a member of the State Medical Society, established an Eastern District Medical Society, wrote numerous papers for their meetings, giving great attention to the reporting of cases in practice. He planted poppy seeds in his garden and raised excellent opium for his private practice. He soon became a first-rate surgeon, took in pupils in medicine, and studied French assiduously so as to be able to read Bichat and Magendie in the original. ✓

In 1808 he returned to Dartmouth for a course of practical anatomy and dissections for surgical anatomy under Alexander Ramsey, famous in those days for his wonderful anatomic skill, and in 1809 he again left practice and studied an entire winter in Philadelphia under Rush, Caldwell, Caspar Wistar, Physick, Dorsey and others. He copied out later in his note-book the important points observed that winter at Philadelphia, and nowhere can one find clearer pictures of medical men and teaching in those days than in its pages. Not satisfied even with this renewal of knowledge he tried for Europe, and failing to get the money in Portsmouth or elsewhere he petitioned the Secretary of

State of the United States to appoint him a special messenger to France, so that once there he could study chemistry and medicine in Paris. Europe was the dream of his life, never, however, to be realized. He invented a machine for making soda-water as of to-day, constructed a large galvanic battery and used it in his practice.

In the summer of 1810 he received an invitation to teach anatomy at the Fairfield Medical School, and accepted it with doubt, feeling himself inadequate to the work. But he did well, and after two yearly courses he was elected President, a position which he held, as well as Lecturer on Surgery and the Institutes of Medicine, until in 1816. At that time, having left Portsmouth in 1813, he found his practice in New York City too good to leave, and he consequently resigned. The year 1815 found him planning the American Pharmacopoeia as witnessed by his private letters to his friends, but not till 1817 did he bring forward his plan publicly, only to find it eagerly accepted but advanced only lukewarmly except by a few friends whom he succeeded in keeping up to the mark. The rest of his life was given to the Pharmacopoeia. Printed in 1820, he met with an accident late in that year, struggled along in search for health, went back to Portsmouth and died very suddenly in October, 1821, aged 46. He lived just long enough to see the success of his Pharmacopoeia and to see it copied both by the Kingdoms of England and France. He was a versatile man, with, however, no other thoughts in his mind than those appertaining to medicine. Of this versatile, busy life more is to be said some day; meanwhile, let us return now for a hasty review of the friendship of this man with Nathan Smith. As for Smith himself, it is generally known that he practised in Cornish, then in Hanover and founded the Dartmouth School, then moving to New Haven and founding the medical school there, and finally establishing at Brunswick, Maine, the Bowdoin Medical School.

Quotations from his letters, hitherto unpublished, are now in order to illuminate his friendly relations with Lyman Spalding and the histories of the Dartmouth and Yale Schools.

While young Spalding was in Cornish, not yet graduated from

the Harvard School, Smith wrote his first letter, December, 1796, the earliest preserved in which he says:

I expect to set out to-morrow morning on my tour [to Europe] and am not sure that I shall go by the way of Cornish and I therefore write you a few words to leave with your father. I believe it is the wish of many people in this neighborhood that you should stay in town [Cornish] till I return, which I also wish you to do if you think it will be consistent with your best interests. I have left a number of accounts unsettled, which I wish to have appropriated to pay what I owe to your father and yourself. I have also a number of notes some out, and others out next Fall and summer which if I should not return may be applied to pay you and your father if those [above-mentioned] should fail. Respecting my voyage I am not so well provided as I could wish, but must put my trust in God and not in filthy lucre. * * * *
I know of a case of stone in the bladder when I return [and the inference is that when he gets paid for that he shall be able to pay the two, all that is owed]. Our business at the college [the New Medical School] increases very fast and I hope it will succeed better than we feared [that is, than we were afraid it would not, as language nowadays has come to mean]. In case any one is sick in my family, I wish you to attend to them personally. If any difficulties should arise about the settlement of my accounts, and which I have left with the attorneys, I have directed them to call on you, and hope you will attend to it, *as you are better acquainted with my business than any other man.*

Before Smith could sail, he wrote again this time from Boston, December 10, 1796 (the date is blurred on the MSS.), and said:

I was sorry that I did not have an opportunity to see you and talk with you before I set out but it so happened that I was obliged to go to Putney and there I sold my horse which obliged me to go by stage and therefore I missed you. * * When I conversed with your father I found that he was very averse to your going away this winter [to the Harvard School] and in addition to what I said in my other letter I think that you should comply with his request rather than disoblige him. He is kind to his children, and wishes you to do what is best for yourself and if this should not appear so, you had better sacrifice a few months than offend him. I am waiting for a passage in the Bark "*Hope*" sailing for Glasgow in a week. Love and respect to your family.

Lyman Spalding having written to Smith, still in Boston, he replied December 11th, saying that Mr. R, who had brought a letter from Spalding, had gone with him to Dr. Warren who had extirpated a tumor on the neck, but Smith was afraid that it was a malignant tumor. "I am still waiting to sail, but expect we shall get away to-morrow. I wish you to send at the first opportunity

to Orford and get the thirty dollars from Mr. D. on his note and pay it over to your father on account. I wish you to do all that you possibly can toward settling my accounts while I am gone. I am glad to hear that you are at my house and hope that you may have enough practice to make you contented."

Soon after, Smith was off for Edinboro and after nine months to a day we find him back again in Boston. His first act was to write to Lyman Spalding somewhat to this effect, September, 11, 1797.

I return you my heart's best thanks for two letters which I have received from you since I left Cornish. The last one I received in London. You may depend it was very grateful to me to hear of the welfare of my family and friends after so long an absence, *as I have received no letter or other intelligence from them than yours.* I am also happy to learn from Drs. Warren and Dexter that you have taken your bachelor's degree at Cambridge with a good deal of éclat, and much to your honor as well as mine. * * * I have written to Mr. Hedge [a pharmacist at Hanover] to send me some money as I am in want of some to pay part of the expense of my voyage and freight for my goods before I can honorably leave town. Do what you can to forward this money business with Mr. Hedge. Best respects to your honored parents and to the rest of your family.

On this voyage Smith brought from London a fine skeleton for his young assistant, as this same letter tells.

From this date to 1800 when the next letter comes along these two earnest physicians were working daily together at Hanover and Cornish, chiefly at the Dartmouth Medical School, as mentioned before, Smith acting as chief, Spalding lecturing on Chemistry when Smith was on hand and on all the other branches as best he could when Smith was traveling all over the country on horseback and especially when he could not get his patients to come to Hanover. Spalding left Hanover in 1799 for Walpole and Portsmouth, but was at Hanover again that Fall for the school. After that he spent some years in Portsmouth and at the date of Smith's next letter was busy introducing vaccination into New Hampshire.

Hanover, August 25, 1800: I have to acknowledge the receipt of two letters from you since I wrote you and am under great obligation to you for the kine-pox infection which I received in your first letter. I have always been of the opinion that we should arrive at such a degree of knowledge about the

kin-pox as to make it a substitute for the small-pox and attributed our failure of it in several instances to our ignorance of the proper mode of communicating it. I have used some of the infection that you sent me. I have never subjected any of my patients to the infection of the small-pox. * * * We have lately had a melancholy instance of the work of cancer curers hereabouts. A patient of mine having a slight relapse after my operation upon him declined a more thorough extirpation at my hands, but consulted a cancer curer in New York with terrible results, returning with dozens of nodules where there was but one when he left my care. * * * I have lately helped debilitated limbs by plunging them into the coldest possible water for a short time, and then immersing them for a long time in water over a hundred degrees of heat. I have also had a very curious tumor of the uterus weighing two pounds and nine ounces. It was expelled from the uterus after bearing-down pains, and when I first saw it, it was attached to the interior of the uterus with a cord resembling the umbilical cord. I absced the tumor which proved to be of a steatomatous sort. Whilst the tumor was growing inside the uterus, the breasts were affected like those of a woman in pregnancy. I lost a patient recently after amputation at the thigh. He went on well until the eleventh day, when he was attacked with intermitting fever and died seven days later. The wound had healed almost perfectly by that time. * * * Respecting our settlement, it will be impossible for me to settle my business with you now. You may depend on my paying you in October. I have been busy all the summer, but not to my profit as I have been obliged to neglect collecting entirely. My bills have amounted to a moderate sum but they do not materialize as yet.

A few days later Smith excuses himself for not attending to the important question of Spalding's resignation of the Chemical Lectureship and of money relations between them by writing on September 8th:

I am now in haste, at this moment being called to a very urgent trepanning case, so you must not accept this as any part of what I wish to write to you. As soon as I can sit down, which I have not quietly done for several weeks, I will make you a long letter of particulars.

On the next day President Wheelock says [Smith having no chance to write]: "The Trustees were fully satisfied and approved of your former attention as Lecturer in the Chemical Department, and wished that you could have found it consistent [with your Portsmouth medical practice, of course] to continue as of old. They thought your proposal to give fifty lectures in four weeks would not give the students time to attain to their other studies. * * * * Their classical studies [showing that in those days

medical students carried on the classics, Greek and Latin as a part of their medical education] * * *. The trustees are sorry, I say, that you cannot in consistency with your patients tarry longer and they have therefore agreed so soon as the college finances will possibly permit to make a cash settlement with you for your apparatus and chemicals."

On the 17th of September, Spalding handed in a letter to his friend Woodward, at Hanover: "I am dead, not unto sin, but unto Dartmouth College. Dr. Smith has written me that the Honorable Board of Trustees have agreed to help him to pay me for money expended on my chemical apparatus."

A couple of weeks later on, after Smith had had a chance to talk over the matter of Spalding's resignation, due both to increasing medical practice in Portsmouth as well as to his great disinclination to travel so far on horseback over bad roads of the autumn and winter, the learned teacher said in substance:

Respecting your property in the chemical laboratory it is necessary that I should give you some information. When the bill for your expenses for the laboratory was presented to the trustees, their first inquiry was whether either you or I had any legal right to charge them with the expenses of the laboratory. I was obliged to acknowledge we had not, but observed that it was reasonable that the College should do something to support such an institution and that I felt myself under obligations of honor to see that you did not suffer in your property on account of what you had done for the institution by procuring such a laboratory, providing you should not continue to use and profit by it, and therefore hoped for some assistance from the Honorable Board, as it would be very inconvenient for me to make out the money to pay your bill. As to your last offer [probably Dr. Spalding was willing to be of help to Dr. Smith even at his personal inconveniences of travel—and had written offering to lecture again if it would be of assistance to his old teacher] I will observe and assure you that you are at liberty to continue in the business of lecturing according to the institutions [of medicine] or you may relinquish the business now and receive your pay for the laboratory, or you may deliver the ensuing course of lectures on chemistry and then relinquish the business. In the latter case, I shall not hold myself under any obligation to purchase your laboratory or any part of it. I may want some part of it, but I will not be obligated to take it. [And he concludes saying] I am happy to hear that by dint of merit you have acquired a good share of honest fame in your profession and that your business is growing lucrative.

These affairs being settled and Dr. Spalding having decided not to return permanently to Dartmouth, he carried on his vaccination experiments and communicated with Dr. Smith who in October, 1800, wrote :

I have just received your favor with the enclosed infection which I will immediately make trial of. The other which you sent me, did not succeed in producing the disease and I did not much regret it, as my business has been very pressing this season, so that I could not have given it a proper degree of attention. The people here want to have the efficacy of the kine-pox proved over and over again.

Dr. Spalding, wishing to get an appointment in the *army* in order that he could attend to the troops at the garrison in Fort Constitution in Portsmouth Harbor, had evidently asked Smith's assistance, for he added in this same letter :

I have written to General Bradley in as pressing terms as possible and I hope it will have effect. John Langdon [Governor] and Dr. Smith, I think, will have some influence with the General. My business in practice has been more than I could get pay for, though I have done better in that respect than before. I have had successful operations for gall-stones, trepanning and hydrocele, of late.

Lyman Spalding's eldest brother, Silas, remained on the farm at Cornish when Lyman went into the study of medicine, and as a consequence of the brother's nearness to Hanover the Doctor wrote to him to see Dr. Smith to try to get some settlement of their accounts rather than to try by letter, whereupon brother Silas writes in November of 1800 that he had been to Hanover as requested, but could get nothing from the Treasurer of Dartmouth, owing to lack of funds.

Dr. Smith told me that it was very uncertain when the college could pay for the laboratory account, and that the Trustees were thinking of giving their note for the amount due Dr. Spalding. Dr. Smith calculates, this course, on six hundred dollars profit from the forty students, and hopes to pay you when he gets all the tickets paid for.

He wants you there very much for there is nobody to take your place. I asked him whether if you arranged so as to come next Fall whether he would be fond to have you, and he told me yes, he should. Your parents think if you can do without the money [due you from Dr. Smith and the College] you had better let it be and come and lecture next year and settle your business then, yourself, better than others can do for you.

Here is an interesting opinion from Dr. Smith regarding the

standing of the Lecturers of the Medical School and the Trustees of the College, and which is in a letter to Spalding in January, 1801.

✓ I think you did wrong in writing to the President last summer. I do not think that the President or the Board of Trustees have or ought to have any control over your lectureship, as it was I who employed you and they had no business with you respecting it. Nor do I think, till they give us some money for our services, that they ought to set bounds to our performances, provided we do not injure the institution of the University. Furthermore, I will say to you in confidence that you are at liberty to come and deliver the Chemical Lectures at what time and as long or short a course as you please and you can make it advantageous to yourself and I will be answerable to the Trustees for the next one. Let me know if you think of lecturing and I will conduct myself accordingly. I have only hinted at these things, being at Cornish, and finding a chance to send word free of postage.

Between this letter and the next is a gap of three years without any letter preserved. Either all others have been lost or more likely that the correspondence languished, owing to frequent meetings at consultations in various parts of the state. Moreover, the New Hampshire Medical Society having been founded, it is very likely that these two old friends exchanged their thoughts at its meetings rather than go to the expense of postage after separating.

However this may be, it is plain that Smith followed Spalding's career with watchful interest, for in November, 1805, he wrote to ask about Spalding's improved Galvanic Pile. "I have been disappointed" says Smith at this time, "in several attempts to obtain the lime that you utilize in yours. I wish that you would get some of it for me and at the same time give me a short account of the operation of the machine and of its effects on the body."

It would seem from the next letter that Spalding had been at Hanover or Cornish in consultation with Smith, for in June, 1806, Smith speaks of a cataract case upon which the younger surgeon had operated. The terms of the letter would suggest that the operation had been performed at Hanover not long before. After giving general directions concerning his present treatment of the case, the patient having developed symptoms suggestive of renal disease, Smith ends his letter with: "I write you in great

haste, being called this very moment to attend a patient afflicted with gangrene.

March, 1807, brings us to an interesting note from Smith to whom Spalding had written, asking his interest in the State Medical Society, of which he was later to become President.

Respecting the objects of the N. H. Medical Society I shall most cordially and zealously endeavor to promote them. I am appointed by the Trustees of the College to attend the next Legislature on business for the College, which will give me a very favorable opportunity to coöperate with the Medical Society, in any measure that will be conducive to the respectability of the profession. Our last course of lectures was a fortunate one. We had a much larger audience than usual. * * * Last year you wrote me respecting your annotated edition of Williams on "Diseases of the Skin," but since then I have heard no more of it. What are we to expect from you respecting that book? * * * Since I saw you [showing that as suggested these two friends now and then met] I have done a successful lithotomy in Vermont.

In the year 1807 Spalding, having occasion to operate on a case of cataract, asked advice from Smith who replied:

I have always stood behind the patient when operating on the right eye and introduced the knife with the edge turned upward so as to make the flap, in that direction instead of downward, which often causes obstruction to the sight in healing. * * * My fees for pupillage to the student you mentioned are \$66 a year and no deduction for one course only. * * * As to the patient you ask about I should give those remedies which diminish morbid excitement. * * * I have sent you some blood root. All that I can find time at present to write you about it, is that it possesses all of the properties of other emetics with some peculiar to itself. It is not so dangerous as tobacco or fox-glove. * * * I have lately had three successful operations on blind patients, two were cataracts and the third had closure of the pupil which I opened with the couching needle after several attempts so as to give pretty perfect vision.

This letter will, later on, appear in full, showing Smith's work and opinions, and throwing light on medical practice of those days.

Early in January of 1808 Nathan Smith, keeping up with the times whenever he was not their leader, wrote the appended letter to Spalding, showing how much he depended upon him for friendly information.

I wish you to write me when the next annual meeting of the New Hampshire Medical Society will be holden and where. I have an intention to

attend if possible. I intend to renew the effort to obtain an Act of the Legislature to discourage quackery.¹ You know I am not easily beaten down in my projects, and though sometimes slow in execution, yet keep the object in view. The business was not judiciously managed this year. I was out of town when the questions were tried and I am confident that more than half the members did not understand the matter. Several of the members have solicited me to renew the application. I shall attend the General Court solely for medical purposes at their next session.

Dr. Spalding having written to Dr. Smith in April, 1808, of a very curious case of aneurism, Smith replied suggesting various points for diagnosis, etc. (the case shall be printed in full later on) and again proving his interest in his former pupil adds:

I have determined to attend the next meeting of the New Hampshire Medical Society at Exeter where you may expect to see me if my health continues.

There undoubtedly they met and after the session was over Smith must have accepted Spalding's urgent invitation to his own home at Portsmouth, for not long afterward I find this odd little note from Concord where Smith was awaiting a chance to go on homeward to Hanover after appearing before the Legislature.²

When I was in Portsmouth I lost or left my umbrella. Whether I took it from the chaise at your house and left it there, or whether it went with the chaise to the stable I do not know. I wish you to inquire and if you find it please send it to Concord to be forwarded to me at Hanover. I have proffered my petition and have obtained leave to bring in a bill which we have no doubt will pass. It will provide for building a building 60 by 35, two stories high, which will answer our purposes very well.

This was to be the new medical school building at Hanover, but the bill failed of a passage, this year, it would seem.

These two friends were good churchmen [as the term is now used, meaning Episcopalians], and when the great fire in Portsmouth burnt the old church and the new St. John's arose on old Strawberry Bank, Lyman Spalding, always interested in the welfare of the church, wrote to Nathan Smith, asking him to rec-

¹ At a meeting of the New Hampshire State Medical Society in May, 1807, it was proposed by Dr. Spalding and voted that a resolution to prevent quackery be offered to the State Legislature: no physician to be qualified for practice unless a graduate from a respectable University, and no medical man so unqualified to have legal power to collect debts.

² Even if he were not a member of the Legislature.

commend a suitable parson, which Smith did in July, 1808, in an interesting letter, historically, but hardly in place in this medical biographical sketch. I mention this special item of correspondence, only because it shows, again, the friendly relations of the two men. I may also add that Dr. Spalding sealed hermetically the box containing coins, papers, and documents placed beneath the corner-stone of this interesting church.

1808 still showed Dr. Smith active as ever in increasing the renown of his school, for he engaged the greatest anatomist of those days the very celebrated Dr. Alexander Ramsay to come to Hanover for a course of lectures. Once more relying always on the friendship of his scholar in Portsmouth, he wrote to Dr. Spalding something in this fashion :

You will see by the advertisement with which I am troubling you what I am doing for Dartmouth College. I have at great expense engaged Dr. Ramsey, one of the greatest anatomists of the world, to give a complete course of lectures in anatomy and physiology, to instruct in the art of dissecting, making anatomic preparations, etc. I am confident that our ensuing course will far exceed anything of the kind ever before attempted in New England. I wish you to see the enclosed advertisement published two weeks in your Portsmouth paper. I shall be there with you this winter, and I will then settle with the printer.

A few days later Smith writes again :

You may inform Mr. Taft [Charles Taft, later M.D., a pupil of Dr. Spalding's] that Dr. Ramsey is in my opinion the best anatomist in America. * * *

I wrote you before, that what I had undertaken this year would require the assistance of all of my friends, and I must now make one more requisition on you. I wish you to lay aside for me as many subjects as you possibly can, preferably an infant with the placenta attached, a child from 6 to 10, and adults. If any kind of gentry of this sort can be obtained, you can preserve them very safely by opening the cavities and immersing them in new rum. Turn down the scalp and saw out a bit of the skull so as to admit the spirit. I will cheerfully pay you for any expense that you may incur in the business. We shall want them here in November as we now propose to do a stroke of business in that line.

Dr. Spalding having determined to refresh his memory upon anatomy left his practice at Portsmouth for two or three months at this time, dissected and made beautiful preparations under Ramsay's instructions, and gave various lectures at intervals at Dr. Smith's request. We can imagine him setting out for

Hanover on the stage coach with these rum-preserved subjects toiling on behind over the 100 miles of rugged road between Portsmouth and Hanover, as well as the hearty welcome with which he met, and thanksgivings from Ramsay and Smith; for, on this material, depended the success of the great lecture course now under way.

Before reaching there, Smith wrote again to say that Ramsay was on the ground, and had already done some work. Spalding had sent Smith some fine chemical specimens for which he now received earnest thanks from his old teacher. Moreover, Smith waxed enthusiastic over Ramsay, one indeed of the most extraordinary men that ever set foot on the earth, a genius for anatomy and oddity as a man, interrupting his lectures on anatomy to talk about religion and Sunday-schools, the poor management of which he often flaunted in the faces of New England Puritans.

You will be highly pleased [Smith said] with his mode of teaching. He makes the most of everything in all his dissections and if you bring what I asked you for, it will enable him to make the present course more perfect as well as to contribute to the intended museum, from which you may at some future time be supplied with such preparations as will be important to you. We shall commence a new era of anatomy, at this time, and if you will contribute raw material we will, whenever we have duplicates, give you them, in preference to any other person.

Returning to Portsmouth, Dr. Spalding sent to Dr. Smith some fine specimens of arsenic, in thanking him for which Dr. Smith begged for good specimens of bismuth and antimony:

I am happy to know [he added] that you are successful in your Anatomical Museum at Portsmouth. I hope your example will be followed and that I shall live to see the dearth of anatomical and surgical knowledge done away with, and those who undertake the cure of disease instead of being the tormentors of the unfortunate and the afflictors of the afflicted shall become the benefactors of mankind and justify the gratitude of succeeding generations. * * * I shall make every exertion to obtain a grant from the State to build a house for medical purposes. I intend to meet you, surely, at the next annual meeting of the State Society, where we can talk together at our leisure.

When asked by Dr. Spalding in May, 1809, how he intended to make application to the Legislature, he replied:

I will procure of the State a deed to a parcel of land sufficient to place the

building on the property of the State forever, for that purpose. The building to be at the cost of the State and remain under the inspection and control of some Board to be appointed by the Legislature to be used and employed for medical and experimental philosophy. Ten thousand dollars would suffice to build the house. I believe something will at last be done for the interests of medical science.

The two friends met again at Exeter in May and talked over Spalding's proposed European voyage, and in July I find this letter, or draft of one, from Spalding to Smith, in which he offers the following plan to Smith:

I still have in serious contemplation to visit Europe and firmly believe I shall accomplish it. I shall pay the most particular attention to anatomy in all of its minutiae and above all to elegant dissections and demonstrations and to the preparation of the lymphatics, lacteals and special organs, sparing no expense to be admitted to the best dissecting rooms on the Continent and in England and actually working at all these things personally, as I did at Hanover last year and in years before. Now sir, if you will only contribute to the expense you shall share with me in the profit. I will spend the time of the first course of your lectures after I return, at Hanover, and will act as dissector and chemical experimenter to you and I will engage to show you every anatomical and surgical fact which is now known or can be obtained in Europe. But I will not engage to spend more than one course of lectures with you, as my business at Portsmouth is such as to render it absolutely impossible for me to leave it to the mercy of the waves. This too will be a good opportunity for you to procure a library and chemical furniture for your college, and to obtain books and philosophical apparatus.

To which Smith replied that he would do what he could but times were hard in Hanover and that money was almost impossible to collect even for any services.

Want of money will prevent me from giving you aid in money. My affairs are at present very much embarrassed on account of some purchases of land which I made two years since, and the money which I have been obliged to spend for the medical establishment has reduced my finances very low. It will be impossible for me to help you from the money granted for the medical building, as we do not receive any money from the Treasurer till a year from next January, and that money is granted for an express purpose and put into the hands of the committee for the purpose so that it cannot be touched by me. As you live in the midst of wealth [Portsmouth rich people] I thought it might be possible that you might find some person who would loan you five hundred dollars for two years. If you cannot alone I would give them security for it and if required would assume the payment by real property worth double the sum.

Now that shows the friendship between these two men better than anything I know of and emphasizes also Smith's fine character; for, as we have seen, Smith had money from the Spaldings, father and son, when he was on his road to Europe, and even after these years he has not forgotten the help received. But after all nothing could be done to forward Spalding's plan for Europe. We shall at another time learn how he looked forward hopefully for the same material assistance from the Fairfield Trustees, but again in vain. He was never to see Europe. I will finish this episode by adding that President Wheelock and Dr. Smith sent to Portsmouth a nice letter of recommendation for Dr. Spalding to show in Europe, and among the pleasant phrases employed, we read: "Greatly have his acquirements secured to him the respect and esteem of his numerous acquaintances."

Disappointed in his plans for Europe but determined not to vegetate in Portsmouth, Spalding went to study with Rush and his colleagues at Philadelphia that same autumn (1809) and from there he wrote to his old friend, telling of his experiences, and in return Smith, in February, 1810, asked for the best and newest instruments for cutting stone, as well as for the latest cataract extraction knives. Having done that part of his business, Smith tells this story which shows up the difficulties of anatomy in those days at Dartmouth.

Toward the close of our last course of lectures, I contracted with a certain person to go to Boston to procure if possible a cadaver. But instead of going to Boston, he went to Enfield [a town not far from Hanover] and procured a subject, which *was taken from us by an officer when about half dissected*. The affair made a prodigious bustle for a time and gave me great inquietude, but I believe we shall survive the accident without material injury either *personal* or to the institution.

Dr. Smith having been chosen President of the State Society in 1811 was asked by Dr. Spalding, who was the Secretary of the same society, what he should announce on the program about the President's oration. Dr. Smith replied in April.

You know what my habits have been, *vis.*, to deliver my sentiments on the nature and cure of diseases in as plain and simple a style as possible, and as this method has raised me to honor and my pupils to a rank at least equal to any medical man's pupils in New England I should not like to depart from

my former practice. And especially as what I have to say will be confined to the theory and treatment of one or two diseases which can only interest medical men. I should not like to call it an oration, lest from the very name, I should be induced to try to play the orator.

The year before this, say 1810, brought a great surprise to Dr. Spalding in the shape of an invitation to be lecturer on anatomy at Fairfield and from this time on to 1816 he spent part of each year there, and moved from Portsmouth to the City of New York as giving him a greater field, "more room," as he said, than Portsmouth. He knew that he was a good chemical lecturer, and he knew that he was one of the best anatomists in America. He longed for a better position and better chances to show to the world what he knew. For years he had sent broad his bills of mortality of Portsmouth, for years he had talked vaccination, and he was constantly publishing reports of his instructive cases in medicine. This had brought him great publicity, at all events, and in 1812 Dr. Smith congratulated him on his election to the London Medical Society and enclosed him the diploma from Dr. Lettsom, which had been sent in Dr. Smith's care. In 1813 Spalding, having established himself in New York, was anxious to go into the furtherance of State Licensure for physicians and asked the opinion of Nathan Smith now at New Haven, and in March of that year Smith wrote him full particulars and added an interesting account of a case of recurrent nasal hemorrhages in a child, together with his means of cure with full doses of opium. Spalding having also in another letter suggested a new nosological arrangement, alphabetically, Smith returned a playful suggestion that "diseases, and remedies too, might be arranged alphabetically; like the arrangement in a dictionary, for instance. Cancer. Cut out * * * Hydrophobia; Hydrargyrum, and so on. * * * But this is all stuff," and continues that when he has time he will go farther into the question of alphabetical arrangement of nosology as suggested by his old friend.

When I go to Portsmouth I will call on your patient. I have had considerable operative business since I came to New Haven and have agreed to perform another operation for the artificial joint at the thigh about the first of April. I shall create a new apparatus to secure the leg after the operation, such a one as has never been seen before.

Happening to be in Portsmouth in September of this year Smith called on Dr. Spalding's wife, was made welcome, and saw several patients.

Portsmouth, he says, remains very much as it was when you left it last year excepting that to fill the vacancy left by you, half a dozen new physicians have moved in, endeavoring to gain an honest living. * * * There is much excitement at Exeter over the Dartmouth College case, but as I have taken up my connections with that seminary, I am not called into consultation. * * * I shall return to Hanover through Boston and then move my family to New Haven, after which I mean to cease roving about the country. * * * Last spring I wrote notes on Wilson on "Febrile Diseases" but as I never was permitted to see the proof, numerous errors crept in

To show his never-failing interest in the Spaldings, one and all, Nathan Smith took a special journey from Hanover to Cornish in November of this same year, 1813, and made a careful examination of the physical condition of old Colonel Spalding, and sent a full medical report of his symptoms to his medical son, Lyman Spalding, then well established in New York. Arriving at New Haven he notifies Dr. Spalding, and added: "We have here about 40 pupils in the new medical school. Please send me some models of the eye and ear of which you wrote me last summer, for I would much like to utilize them in my instructions here."

From 1813 to 1818 all letters between these old friends have been lost, even if any were written, but probably they met occasionally in New York or on consultations, not being very far apart, and by this time, too, Lyman Spalding was overwhelmed with his great undertaking of the *Pharmacopoeia*, now a year or more under way. Still, they kept in touch in one way and another, by sending their mutual medical writings, but in March, 1818, there is one letter from Smith in which he says:

It has been some time since I received a letter from you accompanying your dissertation on fever, and I must beg your pardon for not answering it sooner. The truth is that I have been very closely engaged in delivering the lectures on which I have been very full and more particular than heretofore, and of late, owing to some headstrong and unforesighted young men in procuring subjects, we have been brought into much trouble and perplexity which will, I trust, however soon pass over.

He then goes on to write a curious and interesting criticism of the brochure by his old friend and pupil, Spalding, on fever, a

brochure which has, of course with time, fallen long since into oblivion for medical readers of to-day.

The last letter extant between these two life-long friends is from Smith in reply to a defense by Spalding of public assertions by a certain Nathaniel French in the "Repository" [I think], in which he said that the whole Connecticut River valley was full of women dying from goitre. Spalding denied the assertion in his strongest terms, publicly called French's attention to his grievous mistakes, and in order to strengthen his position before the public, called on the testimony of his old friend and teacher, Nathan Smith, M.D., and in this letter he found what he wanted, for Smith says, in no uncertain voice:

Mr. French is mistaken, for I know the Connecticut valley and its people well, after thirty years of practice there, and goitre is not common there at all, but a rare disease, and when occurring it is imported from the sea-coast districts.

He adds a few words on the anatomic structure of the goitres that he has seen, and so ends [to me] the letters between Nathan Smith and Lyman Spalding. Smith lived several years longer to witness the success of his three schools. Spalding was accidentally hit on the head in the streets of New York, in October, 1820, and died in Portsmouth a year later from chronic traumatic meningitis. He lived long enough to see the success of his Pharmacopoeia, but not long enough to receive the reward of his labors in anatomy, for he just missed the appointment to the Anatomical Chair at the Pennsylvania School. Of Spalding's medical teachings, Thacher says enough. Of his surgery, Nathan Smith said truly: "He had performed, and performed well, all of the operations of surgery of our day."

The life-long friendship of these two men is worthy of example. Though living together at many intervals of time, jealousy never arose between them. All in all it is a model friendship, and I am glad, personally, to have lived, to rescue it from oblivion and unfold it to the consideration of the discerning members of this Academy.

DISCUSSION.

Dr. G. E. Fuller, Monson, Mass.:

In the French and Indian war when the troops were taken with dysentery,

orders were issued to boil the drinking-water. One, Samuel Warner, kept a journal and under date of June 26, 1759, he writes: "This day order came out in general that no soldier should drink any water without it being boiled, except he had ginger in it." [History of Wilbraham, p. 200.] If this had been practised in the civil war, thousands of lives would have been saved.

As to Dr. Smith, three generations were professors of surgery in the Yale Medical School. The grandfather, Dr. Nathan Smith, his son, Dr. James Moran Smith, of Springfield, and the grandson, Dr. David P. Smith, also of Springfield.

SENILITY.¹

BY A. L. BENEDICT, A.M., M.D., of Buffalo.

The fact of growing old, of passing from infancy to childhood, from childhood to adolescence, from adolescence to early maturity, to more or less frankly admitted middle life, from middle life to the state euphemistically called "elderly," and from this to undeniable old age, is one that constantly puzzles every thinking human being and that suggests all sorts of medications, introspective and objective, religious, social and scientific.

Not to discuss growing old from a religious standpoint or even to contemplate it with morbid introspection, it may not be out of place to consider briefly, intellectual maturation and senility in their bearing upon the social relations of the individual. It has sometimes seemed to me that each individual is, so to speak, set to strike his optimum at a given period of life. All of us can recall ideal boys and girls who never have matured into full manhood or womanhood. Then there are others who, as boys and girls, were ill at ease, unpopular and unpromising, who became in early adult life powers for good among their pupils; who have won the respect and affection of patients; who have become leaders of other men and women. But as age advances, very likely we find these same men and women unable to maintain the same relative hold upon their pupils, patients, employees or adherents and compelled to seek new devotees among the rising generation.

Conversely, persons who have gone inconspicuously through four or five decades of life, gradually strike their level and become influential among their colleagues and juniors, in a social if not a public sense, during the autumn of life.

A shrewd druggist placed a platform scale in his store and hung on the wall behind it advertisements of antifat and antilean nostrums. He explained that, so long as a person's weight was unknown to himself and his friends, it would usually give him no trouble but, just so soon as the exact weight was known, it would seem deficient or excessive in a large number of cases, and a demand would be created for one or other of the nostrums. Often, of two persons of the same weight and height, one would call for

¹ Read before the American Academy of Medicine, Boston, June 2, 1906.

antifat, the other for antilean. So, too, it often seems that where we tell our exact age, we become too young to suit some of our friends and too old for others.

The different rates at which different individuals mature is a phenomenon worthy of scientific study. At 22, I had a roommate, aged 47, to whom I acted as mentor not only in regard to his studies but in regard to his moral conduct. Conversely, one of my school friends, two months younger than myself, was as a boy too mature in his mental development ever to be a playmate of his friends of equal age and, to-day, only personal recollection or documentary evidence would convince any one that he was not 15 years my senior. In neither of these cases is allusion made to maturation under stress of hardship and grief, or to senility or maturation as evinced by gray hairs, baldness or physical infirmity, but to mental maturation pure and simple. Indeed, while the whitening or loss of hair, the development of the beard, the formation of wrinkles in the face, the hardening of arteries, the development of the arcus senilis, etc., are indications of age, we recognize individuals as mature or immature, as young or old, quite independently of any or all of these changes, until, quite late in life, purely physical health or infirmity may mislead us to add or subtract 10 or 20 years to or from the true age of the individual.

Neither does mental achievement or practical judgment determine our estimate of maturity or senility. We need not go beyond our personal knowledge of our own profession to realize that some of our colleagues whom we consider as fully mature at 30 or senile at any age from 50 on, are not so considered because they have ever accomplished anything noteworthy in scientific or clinical study and, on the other hand, many of the most important advances have been made by "kids" and many of our leading physicians and surgeons are boyish at middle life and always will remain so. It is unnecessary to state that such observations apply to other lines of professional and business activity. Indeed, it seems that great attainments in any scientific vocation can be made only by those who throw themselves into their lifework with the same abandon, enthusiasm, forgetfulness

of other interests and disregard of the future, with which boys enter into a game. The leisurely, dignified, self-controlled, grown-up manner of doing things, may be well adapted to making money or to carrying on certain phases of professional work, but it is not conducive to original discoveries as to birds and mammals, germs, or even the functions of the body in disease and health or the behavior of the chemic elements singly and in combination. If the kingdom of Heaven is opened only to those who become as little children, the innermost realms of science are reached only by the tireless feet of those who can run and climb as boys.

Often, we note the paradox of a middle life of play or even dissipation, following upon a serious-minded youth. The individual, so far as his mentality is concerned, seems really to have grown younger instead of older. To some degree, this paradox is explained by the more or less real need of appearing mature in order to secure or to hold a position of responsibility. Conversely, with increasing years, a superabundance of physical strength or of juvenility is affected in order to controvert the anticipated accusation of senility. Thus, the young man grows a beard, the veteran shaves his face and dyes his whitening locks, from sordid motives. Again, youth imitates age and age youth, simply as an expression of the innate desire for that which we do not possess, on precisely the same principle that the successful surgeon would give up his career to be able to influence men's thoughts by the magic of his voice in oratory or that the statesman would relinquish his if he could write such a story as Kipling.

But, quite aside from such reasons, the assumption of youthful habits late in life is very often due solely to the fact that leisure or actual financial ability was lacking at the period when sports and social enjoyment are considered appropriate. In other words, the boy has been compelled to be father to the man of pleasure and to provide the means for youthful pastimes, for himself as well as, or instead of, for his own sons. Even when there has been no actual lack of financial means for self-gratification a wholesome ambition has led the youth to immerse himself in serious duties from which he emerges in the Indian summer of

life with the feeling that he has earned the right to relaxation and, indeed, with the realization that, either to lengthen or to broaden his life, he must have the experiences of youth.

It is commonly stated that a happy, youthful disposition can be, to some degree, achieved by sheer force of will and that, whether a natural gift or an acquisition, such a disposition conduces to health and longevity. While granting that it is a blessing and a comfort to feel and to act young and, certainly, that too close application to serious duties impairs the health and shortens life, I am personally skeptic as to whether the boyish man or girlish woman enjoys better physical health, postpones senile changes longer or actually lives longer than the individual who is sedate and mature. And it certainly must be admitted that the man who overtaxes his physical strength in playing ball or the woman who dances and plays golf after arterial and visceral lesions have set in, purchases a prolonged youth at the expense of a shortened life.

Although denying the claim that mental juvenility has a hygienic value in preventing senile physical changes and in prolonging life, it must be admitted that stress of circumstances may and usually do, age both mind and body, also, that the purely physical changes of senility render many of the expressions of juvenility impossible and, in addition, react by suggestion upon the mind so as really to make the individual "feel old."

One of the most marvelous phenomena of life and one that grows less marvelous and less mysterious only because of custom and not from any progress toward explanation, is the different rates at which maturity and senility advance. Compare a puppy and a baby born the same day. Almost by the time that the baby is weaned, the puppy has reached sexual maturity and full growth. He is middle aged and sedate before the child can be trusted to look after its most primitive needs or can be regarded as a rational, though immature, individual. When the child reaches puberty, the dog is dying of old age, not, indeed at a record-breaking age but still at one far beyond the average. The equine animals quite often live to be 25 or even 30 and whales and various other large animals are said to have a considerable longevity. Turtles

are occasionally found with ancient dates carved in their shells, but, in many instances, these dates are fictitious. Of the animals with which man is at all closely associated, the elephant, camels, parrots, eagles, swans, ravens and some fish, notably carp, are almost the only ones which equal or exceed his own longevity. It may be said in parenthesis that, contrary to the prevailing pessimistic opinion, man not only exceeds most of the rest of the animal kingdom in longevity but in resistance to causes of disease in general and to specific disease germs in particular.

On a lesser scale, we note variations in human maturation and senility quite comparable to those of the animal kingdom in general and even more striking on account of our closer relations with our own kind. At one extreme, we have the cretin who lives, not a long life but still frequently one of 20 to 30 years, without getting beyond the appearance of late infancy. At the other extreme, we have the still rarer phenomenon of geromorphism, in which precocious development culminates in all the superficial attributes of old age before the normal individual would have reached his majority.

These extreme types are rare and distinctly pathologic. Less striking and yet of more real interest are the variations of physical and mental maturation and senility, which are encountered in every-day life. Of paramount importance from its indirect influence upon social and ethical and ultimately upon economic and criminal conditions, is the disparity in the maturation of the two sexes. Although there are well-known differences in the time of puberty, according to race and climate, not to mention individual variations, it is generally true that somewhere between the ages of 12 and 16, girls are quite suddenly set two or three years ahead of the boys who have hitherto been their companions. Personally, I am rather skeptic as to the truth of the prevailing opinion that American girls usually begin to menstruate at 12 or 13 and that the local signs of puberty appear much before the age at which they are noted in boys. Still, so far as general mental and physical phenomena are concerned, there certainly is a marked and quite sudden disruption of childish companionships due to the different rate of maturation of the two sexes.

At some time after majority, the average greater physical and mental occupation of men tends to restore the equilibrium and, notwithstanding the slurs of certain writers of fiction and social critics that a woman of 26, marrying a man of her own age is "robbing the cradle," it seems to me that there is a period of, say 15 years, in early adult life in which mental and physical maturation is independent of sex, and independent of actual age, within a limit of say five years, excepting for numerous individual variations, which are as likely to be in favor of the woman as of the man. After the menopause, there occurs quite suddenly an even greater advancement of the woman beyond the man than occurred at puberty. But, I would offer the same criticism as before, namely that the actual sexual change at the menopause does not occur so early as is commonly thought and that it is of secondary importance as compared with mental and general physical changes toward senility. In spite of certain recondite attempts to establish a climacteric for men, as well as women, the cold, practical fact remains, that there is absolutely no such thing as a definite period of cessation of reproductive power or even of sexual function in the male sex. In a surprising number of cases, the sexual function is maintained to the last. A patient of mine, aged 73, exercised this function more frequently than the average man of 30; he told me of the death of one of his friends, a distinguished judge, during its exercise and prophesied the same end for himself. We may point to one of the Presidents of the United States as an example not only of fecundity but of active sexual function maintained until late in life, and, while it is by no means true that the majority of old men prolong their sexual activity unduly and in an unseemly way, it is a matter of common observation that there is absolutely no such thing as a male climacteric.

While women become senile more rapidly than men, their method of life is such that they are very largely protected from those causes of death which are theoretically avoidable but which inevitably carry off a great number of men after 50. Thus, as a rule, elderly widows greatly exceed widowers. On the principle that there is more sown of the better crop, female births are some-

what in excess of male and the female population remains somewhat in advance of the male till about the age of 29, when equality is nearly absolute, there being 1,731 males to 1,750 females in each 100,000 of population. From this age to that of 58, the males exceed the females, the curves of number receding from and then approaching each other. At 58, there were, in 1900, 521 males and 524 females and at 59, 502 males and 499 females, for each 100,000 of population. From this point on, there is a nearly absolute equality with only insignificant fluctuations, till 75, when the females show a decided though slight preponderance. After the ninety-fifth year, women outnumber men nearly 2 to 1.

It is obvious that the physical differences of maturation of the two sexes have a very important bearing upon marriage, which is not only a matter of sentimental interest of transcendent degree, but the foundation of society. That first love is usually abortive, is readily explained by the sudden advancement of a boy's female companions at the incipience of the truly sexual attraction between the sexes. At 25, he may have quite caught up with his original sweetheart but he is not likely to have forgotten that for several years, she was too mature for him, even if she has not already married one of the older set. But there is no obvious obstacle to his marrying another girl of his own age or even a little older. Indeed, a few years make very little difference in social affairs and unless a man has waited till fairly late in life and has married a woman considerably younger, say ten years, a very serious problem confronts the pair at about 40, when a comparatively young man finds that his wife has, as if by magic, been changed to a woman ten years his senior. Even disregarding the immediate personal relationship of the pair, which may remain entirely harmonious, many forms of social diversion become practically closed to the wife although the husband is still welcome. One would scarcely like to go so far as to say that nature has interposed a protest against monogamic marriage and, still, we must frankly admit that the unequal rate of maturation of the sexes is a prolific cause of domestic infelicity, of divorce and its attendant evils and the fact that these results are comparatively rare, is, in itself, a eulogy of civilized humanity and of the male sex in particular.

If we regard senility from the purely objective standpoint, I would hazard the definition that it consists in the encroachment of connective tissue upon parenchyma, of calcium phosphate and certain other inorganic salts upon connective tissues and of irregular regeneration of epithelium. It is surprising how narrowly we may limit the definition in this way and how closely together diseases approach, which, at first thought, are widely dissimilar. For example, cerebral apoplexy, arteriosclerosis, chronic Bright's disease, various senile cardiac diseases, not to mention the purely secondary dropsies, hepatic sclerosis, diabetes of the elderly—not the fulminant diabetes of the young, which is probably often a purely functional disturbance through the sympathetic nerves—are all really the same disease, differing only because of accident of location. So, too, a calcified plaque in the mitral valve or the arch of the aorta, or a brittle coronary artery which allows the old man to die, literally, of a broken heart, is quite in analogy with a brittle bone that fractures easily from a fall that would do a young man no harm or even with the obliteration of the sutures of the skull which has no influence whatever upon the duration of life. Even the chronic bronchitis and bronchopneumonia so prevalent in the old, perhaps even an increased susceptibility to pneumococcic pneumonia, is essentially due to vascular changes in the lungs. Considering the epithelial side of senility the facts that the old man secretes less hydrochloric acid than the young, that he is more disposed to certain forms of eczema, that erysipelas streptococci penetrate his skin more easily than they do the elastic skin of the young, are, in all probability, closely related to the fact that cancer is almost entirely a disease of the relatively old. Indeed, cancer occurs at the beginning of senility in the majority of cases; in other words, at just the period when we should expect a stormy, irregular activity of growth and before the cessation of regenerative power.

We must not allow similarities of nomenclature and of location and gross symptoms to confuse us. In the young, we note a tendency to malignant activity on the part of connective tissues—sarcoma—which must not be confused with cancer but which may bear the same relation to the senile alteration of mesoblastic

cells resulting in fibrosis that the irregular proliferation of epithelium into cancer does to its strictly senile decadence. A contrast has already been drawn between diabetes in the young and in the old. In the former, it is either a functional disturbance or due to some acute pathologic process in the islands of Langerhans, in the latter, it is more strictly an interstitial process and, indeed, it is altogether probable that many mild cases of glycosuria, miscalled diabetes, in the aged, are due rather to the same interference with the glycogenic function of the liver, than to an interference with the internal secretion of the pancreas. So, too, the exophthalmic goitre of the girl of 16 is probably quite different pathologically from the same disease occurring at the menopause. Rheumatism of the young is usually a specific infection; rheumatism of the old is, on the other hand, usually due to metabolic toxins and it is quite likely that no essential difference exists between senile rheumatism and gout. Apoplexy in the comparatively young, say at 35, is notoriously suggestive of syphilis which produces a vascular lesion decidedly different from that of senile fibrosis. Other examples will readily occur to you, of the difference between diseases of the same or similar nomenclature, in the old and in the young.

There remain numerous problems regarding senility which are as yet unanswered. For instance, does a man or animal ever, strictly speaking, die of old age? This question is more difficult than at first sight appears. In most instances in which death is ascribed to old age, some intercurrent affection exists, yet, if the disease, as bronchitis, obstipation, etc., is, in itself, of slight moment and practically incapable of causing death in a younger person, it is really quite as accurate to charge the death to senility as to the intercurrent disease. In other instances, death in the very aged may occur from some emotion, chilling, fatigue, etc., or some condition intermediate between psychic and nervous and organic, as for example distention of the stomach with gas, due to a transient indigestion. In these conditions, too, death is due rather to the underlying weakness of senility than to the trifling exciting cause which latter might and would be replaced by some similar occurrence if the particular cause of death could

have been averted. The necropsy does not always help us in assigning a cause for death, for at practically every examination of a cadaver, we find something wrong, and even serious lesions are not necessarily the immediate causes of death and often, indeed, they are obviously not thus operative. In a sense, even an exaggerated fibrosis, calcification, disturbance of epithelial integrity is part of the senile change, so that an old man, peacefully dying, during sleep, of a ruptured artery or gradually succumbing to the toxemia of a contracted kidney or liver may be said to die of old age. At the same time, "old age" is unsatisfactory in a death certificate and is often used when the age given is too little removed from our own, to be comfortable. Again, as has been seen, old age sufficient to warrant the thought of death from an otherwise inadequate and trivial cause, is reached by different individuals after a very different number of years of life.

Another question that arises in this connection is whether a given degree of senility in man or animal corresponds to a given degree of histologic change. This question is, itself, inevitably faulty because, in the first place, we cannot measure senility in terms of so much whitening of the hair, wrinkling of the face, quavering of the voice, etc., nor in the second place, can we suppose the calcificatory and interstitial changes to be symmetrically disposed in all bodies. Nevertheless, in general terms, we may ask whether a man who, at 60, corresponds to our conception of a man of 80, really has the tissues of a man of the latter age. Still more important, does the average dog of 15 or the average horse of 25 or 30, have the osseous and fibrous changes of a man of 80? Off hand, these seem easy questions to answer but, on inquiry of several veterinarians, including some holding positions of prominence in colleges and government bureaus, I am unable to get the desired information. That the bones of the short-lived animals ossify more quickly and more thoroughly than ours do in the same number of years, seems well established. So, too, the toughness of the flesh of old animals used as food, is doubtless due to an increase of connective tissues. But there seems to have been no accurate scientific study along these lines

nor as to whether cancer of the lower animals bears the same proportionate relation to age, as in the human being. Such study would be of great value, not only theoretically but practically, as we cannot hope to increase longevity nor alleviate the infirmities of age until we have a clear conception of what we are grappling with.

Another question regarding senility also, at first thought, seems purely speculative, but really has an ultimate practical bearing: Are the changes commonly regarded as senile inseparably connected with the duration of life, although, as has been seen, progressing at unequal rates in different individuals, or are they merely due to the accumulation of effects from adventitious causes encountered during life? This question may be taken either as applying to mental or to physical senility, and, obviously, we may also include maturity. In this broad sense, the question has many practically useful corollaries. For instance, limiting ourselves to mental maturity, we may recur to a matter discussed by the Academy in 1897-1898: The educational demands of the time are encroaching too much upon the period of active, productive existence. It is possible, without too great intellectual strain or deprivation of leisure, to put a bright boy through the grammar school by the time he is 12, instead of 14 or 15 as at present. Would the four years from 12 to 16 spent in high school yield as much to him as the four from 15 to 19? The same question may be asked with reference to college and professional courses. Again, we may ask why the average man of 25 has better judgment than the average man of 20? Is it simply because he has learned more lessons in the rough school of life or simply because he is 25 instead of 20, or do both factors operate? Is individual difference of maturity and judgment to be similarly explained and is there the added factor of hereditary mental accretion? Does the average intellect become inelastic at about 40 simply because of the exhaustion of a stored energy, or because of purely physical deterioration of the brain; can we prolong its period of elasticity by rest or, on the other hand, by increasing the tension? Similar questions may be asked regarding the actual senile state, with regard to sexual maturation and decadence, etc.

Limiting ourselves to the physical side of the question, we encounter numerous corollaries. For instance, why is immature flesh unwholesome as an article of diet? Every one knows that bob veal is unwholesome but I have never found a sanitarian who could tell me why, except by allusion to the tendency to bacterial decomposition in young flesh, which seems to be doubtful and which is beside the mark. I have only recently learned that veal becomes beef, not at any special age, but when the calf ceases to live on milk.

Can we hasten maturation by employing a diet rich in lime and in such other ingredients as may be demonstrated to preponderate in adult tissues. Per contra, can we delay senile calcification by a practically lime-free diet or by facilitating the precipitation of lime in the alimentary canal or its solution from the fixed tissues? I need not remind you that it is extremely difficult to obtain lime-free food and, yet, if senile calcification could be thus delayed, almost any trouble and expense would be worth while.

Is the interstitial change of old age closely analogous to the development of scar tissue, by repeated minute insults to the cells? Is the old man's liver or kidney in essentially the same sclerotic state as that which we recognize as hepatic sclerosis or interstitial nephritis? If not, just what is the difference, as to morbid anatomy and etiology? If so, may we not generalize to the extent of declaring that senility is nothing but a slow form of various interstitial inflammations, due theoretically to avoidable toxins, changes of temperature, etc. And, may we not even hope to avoid alcohol, indol, due to gastroenteric bacterial activity, arsenic, formaldehyd, saltpeter, excessive quantities of common salt, exposure to cold, and damp and out and out infections, to such a degree as really to postpone death from senility?

If, as seems probable at present, cancer is not due to a germ excepting in the sense that its own cells are germs of infection, can we not discover some morphic or functional state of the epithelium which causes this terrible disease? Or can we not, at least avoid the irritations that seem to account for some cancers?

It has frequently been pointed out that the natural life of an animal is about five times the developing period and that man

ought to live to be about 100 years old. Yet from the earliest historic statements, barring some as in the Bible, which may be regarded as legendary or due to changes of numeric values of letters or to confusion of years with other divisions of time, the ordinary maximum of human life has been observed to be about 70 or 80. It is extremely doubtful if this duration can be prolonged by any attention to hygienic detail, excepting the ordinary means of caring for the feeble and aged. Actual observation of the very old does not warrant the belief that any particular diet or abstention consistently carried out will have any great effect in regard to longevity and a surprisingly large number of the very aged have indulged in various vices of diet and habit which should theoretically have brought them to an early grave. As stated, the mere maintenance of mental juvenility does not have any measurable effect in prolonging life and may actually shorten it. Heredity has some influence upon longevity but whence the original tendency to long life was derived, does not appear. The pursuit of an elaborately simple life, on the order of oatmeal, luke-warm water and retiring at 9 o'clock, does not promise much for longevity and, if it did, would commend itself to very few persons.

DISCUSSION.

Dr. J. W. Grosvenor, of Buffalo:

I would like to ask the author of the paper what he regards as senility, what he considers a good definition of the term. I have been unable to find one myself, and it seems to me that it would throw a good deal of light upon this subject if we had a good definition of the word.

Dr. J. T. Searcy, Tuscaloosa, Ala.:

The question of senescence, since Dr. Osler has so publicly drawn attention to it of late, has popularly become an attractive and interesting topic.

I think we can trace the natural processes of mental change from childhood to old age. The first part of life is mentally the acquiring age. We take advantage of this fact in teaching the young. The acquiring faculties of early life are better than those of adult life and old age. You cannot teach new methods to an old man. Judgment and execution built upon acquisitions do not mature until adult life. The senescence of mental abilities takes place in the same order in which growth appears. Acquiring abilities decline before judgment and executive or emissive abilities. How senescence

sets in, how soon it arrives at that stage called dotage, and how it differs in different persons, are interesting questions. Some men at fifty are more senile than others at eighty; and no two are alike.

We have in psychiatry always to consider the question of senility. It hastens on the secondary dementia that follows psychoses of all kinds. In the young we sometimes see an abnormal general mental failure, which is called precocious dementia, because it precociously antedates the process we naturally expect in old age. The last stage of an old man's mentality is naturally a terminal condition we call dotage.

Dr. Leartus Connor, of Detroit:

I think it is often quite difficult to separate the natural changes in the crystalline lens from those caused by disease. We know that each human being that is born, grows to a certain stage and then returns to the elements whence it came—we accept the fact of such a cycle—though ignorant of its cause. I suppose if all had perfect health we would be like the deacon's one-horse chaise, "go to pieces all at once." Some such we have all known. They have had a good amount of physical and mental activity upon going to sleep but never wakened for their friends. There has been a beautiful passing away.

Morgani's greatest work was written when he was 79 years of age. Many know that he had been preparing for this for fifty-six years. Living at a time when hospitals were not thought much of, post-mortems scarcely alluded to, such was the man's make-up, that he made everybody assist him in securing both ante and post studies of disease. The laws and research methods thus established are among the greatest of modern medicine. We owe to Morgani and the spirit which he injected into humanity the best in modern medicine to-day. Here was a man exerting this world-wide eternal influence who ought to have been chloroformed, according to our friend's scheme, twenty years before he did his best work. My impression is that one who is born well, and lives a rational life, is likely to go to an old age of very much the same sort. When I hear one speak of senility in connection with old age, there comes to me the thought of my grandmother and grandfather—white-haired people, full of affection, representing the beneficence of a well-spent life. I remember hearing a very little boy saying something about an old woman not entirely respectful. I reminded him that the Good Book said that we should honor the hoary head. He replied, "yes, if they do right; she don't do right." I am inclined to think that life conducted along physiologic lines will have a normal close.

Dr. Casey Wood, of Chicago:

If Dr. Benedict, in answering the rather difficult question which has been asked, will have regard to the condition of the interior of the eye, it may throw

some light upon this question of senility, particularly upon the date at which senility, so-called, sets in. One of the principal evidences of advancing age are the organic alterations in the smaller vessels. Only in the fundus of the eye can these changes be observed and demonstrated. A short time ago de Schweinitz and others observed among the signs of vascular changes in the retinal vessels that when an artery passes over a vein, the artery apparently sinks into the substance of the vein. These sclerotic changes have been observed at almost every decade of adult life, in some cases as early as 25 years of age. They are much more marked in older persons; indeed, probably the majority of individuals past the fiftieth year present them more or less clearly.

Dr. Albert H. Tuttle, Cambridge, Mass.:

Some studies I pursued when a student at the marine laboratory at Newport always seemed to have a bearing upon the subject of cancer and its relation to old age. At the time I was studying the life history of *Lunatia heros*, one of the sea snails. The nests were collected containing the egg from the time it was deposited to the well-developed veliger stage. The specimens were studied fresh from their natural environment, the sea, and after they had been kept for variable periods under artificial conditions in the laboratory. According to the change in the environment there was a marked change in the development of the animals, producing monstrosities of various kinds. I was able to trace the development of an egg from its monocellular stage to the mature veliger by taking off at different times, part of one nidus, and under normal environments there was seldom any departure from the law of reproduction. As soon as the eggs were placed under artificial conditions the law of inheritance by which like produces like, seem to lose power, and the cells although they continued to grow, split up into all sorts of combinations, forming imperfect double monsters, morula forms, single independent cells, etc. The cells varied considerably in size and shape and differed much from the products of normal development. Each cell developed independently of its brother cell and became an outlaw. If there is any one thing that is shown in the development of malignant disease and especially of cancer, it is that the cells forming that growth have separated from the cells of the rest of the body and are not living in harmony with the community, the body as a whole; in other words they are outlaws, which by their superior strength, grew at the expense and destruction of their neighbors, until their ravages have encroached so far upon one of the special divisions of labor that its function can no longer be performed to the maintenance of the system and death of all the body, follows.

In the study of these small animals the change of environment by affecting the nutrition of the cells was the cause of the outlawed condition of these cells. It has always impressed me that local changes which are associated with the development of malignant disease under certain conditions and

periods of life have their chief importance in excessive or deficient nutrition. On the one hand, continued local irritation which produces hyper-nutrition is frequently attended with the formation of malignant growth. On the other hand, we find that malignant growth starts many times along with the changes of the system at that period when there is loss of nutrition and general depression of the vitality of the body.

It seems to me that this has a certain bearing on these changes of senility and I offer the suggestion as a partial explanation of the process of malignant growth.

Dr. Woods Hutchinson, Redlands, Cal.:

What should be the attitude of the physician in this matter? Is old age a thing to be encouraged or discouraged? We ought to look at it from a rational point of view and plan not so much to lengthen the lifetime of the individual indefinitely, but to perpetuate it to such a point as contributes to the interests of the race and then let it drop. I think the work which the profession has before it is to make life more vigorous while it lasts rather than merely longer. I think our attitude has been too much to encourage individuals to hang on to life instead of driving the machine as fast as it can go, getting all out of it possible and then letting it go to the scrap heap as rapidly as possible. That is the way we would all personally prefer to live and die. Get as much as possible out of life—then drop it.

Frederick H. Gerrish, Portland, Me.:

I think that for almost every one of us old age is a receding point. When I was young I saw that the school in which I was teaching was being injured by the retention on its faculty of men who had passed their prime, and I registered a vow that when I got to be sixty, if I had a teaching position, I would resign. When I reached sixty I celebrated my birthday by keeping my promise to myself. I think that it is of immense practical importance that men who hold positions should recognize the fact that they are not good judges of their own capacities when they get into the fifties and sixties.

Dr. William R. White, Providence:

I was interested in the remarks of Dr. Hutchinson in regard to this theory that it is best to drive the machine to the limit and then let it go to the scrap heap at once. This may be all right in theory, but it does not work out like that in practice. On the contrary, the machines too often become neurasthenics, dementa, hemiplegics; they fill our institutions. Life is maintained but becomes a burden.

Dr. Benedict, in closing:

I did not realize that the subject would arouse so much interest but this is undoubtedly due to two facts: first that the paper deals with topics on which

I have personally been unable to throw much light and, secondly, because the discussion has proved more valuable than the paper itself.

With reference to a definition of senility—or of maturity—we must, first of all, recognize the considerable degree of independence of intellectual and physical development in the individual. As has been pointed out in the paper, certain histologic and chemic changes are characteristic of senility but no one of these is a definite index of age. These changes are commonly considered identical with similar changes occurring as distinctly pathologic processes—fibroid change, calcareous infiltration, various degenerations—and, if so, any one or all of them are theoretically avoidable. If these similarities are identities, then it follows that senility is essentially a disease, or a combination of diseases, and subject to definite means of prophylaxis, at least theoretically. To some degree, this is also a practical fact and is summed up in our experience that right and hygienic living actually tends to keep the arteries soft, and the liver, kidneys, etc., in a state corresponding to that characteristic of young adults. On the other hand, experience also points out many exceptions to this rule, probably on account of vicious heredity or other recondite individual tendencies.

It is an interesting speculative, and to some degree, a practical question, whether senility would ensue and death take place without other adequate cause, if these various demonstrable lesions could be averted. As has been pointed out, there is no accurate mass of data to show whether various animals, at the maximum of longevity, have practically identical tissues, allowing, of course, for individual variations, and striking a broad average. This point can be determined by a study of comparative anatomy. It can also be established whether there are corresponding, average physical states, for various ages of man, as 40, 60, 80 and 100.

Beside these difficulties in the way of a definition of senility, which may be removed simply by accumulated evidence, there are others of a more recondite nature. At present, I believe it is possible to say, only that senility is characterized by an encroachment of fibrous tissue upon parenchyma and of calcareous and other degenerative changes upon connective tissues, pre-existing or newly formed to replace parenchyma.

In regard to pre-disposition to disease, by senility, it is a prevalent misconception that the pre-disposition is relative to the degree of senility. This idea is true, only in regard to conditions in which the progressive degeneration of organs and the gradual failure of functional power are important factors. With regard to cancer, thyroid failure, and even conditions of the sexual organs, the period of maximum incidence, is at what may be termed the youth of old age. In the case of cancer and hyperthyroidism at the menopause, there is, so to speak, a stormy activity of epithelium, precursive of its vital failure.

Turning from the physical aspects of bodily development and retrogression, many interesting though not altogether scientific problems present them-

selves, which are essentially the same, whether we are discussing maturization or senile decay. How different is the companionship that, as adults, we feel for children, as contrasted with that which we feel toward other adults! How curiously our mental attitude readjusts itself toward our acquaintances and relatives, as one or the other of us passes through the comparatively brief interval between childhood and maturity or maturity and senility! Why is it that we regard our associates and are regarded by them as mature in some matters, immature in others? In our own experience as physicians, we not infrequently, perhaps usually, find that the very persons who entrust their lives in our hands, would not consult us as to the investment of dollars and cents. One of my old medical friends, now deceased, once said to me, "I feel a great deal more at home with men of your age than with men of my own age," and we often find that our natural associations are with one average age professionally, with another socially.

MANUAL TRAINING FOR MEDICAL STUDENTS AND INSTRUCTION IN THE PRINCIPLES OF PSYCHOTHERAPY.¹

BY DR. GERSHOM H. HILL, Des Moines, Iowa.

In business this new century is developing a tendency toward specialization. In education, the same inclination is apparent. Farmers' children, in ungraded schools, are now taught simple scientific facts which relate to the raising of grains, vegetables, fruit, and domestic animals. Many high schools give instruction in manual training, in stenography, and in typewriting. The state normal schools, not only supply teachers of the common branches, but kindergarten workers and instructors in vocal music. In the State University of Iowa, besides the usual and the time-honored departments, engineering, of various kinds, is taught in a practical manner. This same kind of training is most popular in our Agricultural College also.

The faculty in a medical college is composed of men, who, in their practice, are specialists. More surgical operations are being made, and the proportion of medical students who wish to become surgeons is larger than ever before. Medical students, on account of extensive laboratory work, or on account of the special facilities for clinical study, or on account of being a protégé of an enthusiastic teacher, develop a desire to specialize.

All physicians believe they will be more successful if they possess unusual skill, therefore, young practitioners who are located in large cities, in order to demonstrate their superiority to their patrons and to their professional brethren, feel impelled to acquire as much knowledge of and as much experience as possible in some particular class of diseases. Thus they become specialists at the outset of their professional career. When the country practitioner goes to the city to do post-graduate work, or when the city practitioner goes to Europe for the same purpose, he finds that he can use his time most advantageously if he restricts his investigations to some particular division in medicine or surgery.

While I believe that a medical education should be thorough

¹ Read at the Thirty-fourth Annual Meeting of the American Academy of Medicine, Boston, June 2, 1906.

and technical, I also believe and here advocate that *a medical education should be well balanced and as general as ever before.*

While great progress has been made in the discovery of new remedies for diseases, also in the preparation of various kinds of medicine, making them convenient of administration and agreeable to take, and although therapeutic achievements, with drugs, have been very satisfactory, yet on account of the universal and the good education which now prevails, on account of prosperity, versatility, and a more general use of hygienic methods of living, people have come to believe in, and to demand, certain other kinds of treatment, for physical and for mental ailments.

MANUAL TRAINING.

By manual training I mean ability to give the treatment ordinarily done by well-trained nurses, consisting in baths, massage, Swedish movements, osteopathic manipulations, and electrical applications.

HYDRO-THERAPY.

Mineral water used internally or by means of baths, has been a recognized form of treatment from remote antiquity to the present time. Saratoga Springs, the Hot Springs in Arkansas, and many others, in different countries, are well patronized. Watering places "all along shore" are much resorted to every summer on account of the refreshment they afford. Ancient history makes record of public bathing-places for the common people. It is a trite saying that "cleanliness is next to Godliness," and the human family has long since learned the advantage of keeping clean; not only so, but on account of the facilities for bathing in the modern home, in the up-to-date hotel, in the barber shop, we all know the soothing and refreshing effect derived from an ordinary bath. Many men leading a strenuous life testify to the advantage of the shower bath, the Turkish bath, the Russian bath, the cabinet bath, or an electric bath. Suffice it to say then, that *young physicians* who begin the practice of medicine, hereafter, should not only possess a scientific knowledge of hydro-therapy and be qualified to prescribe treatment with water for their patients when indicated, but be qualified to give

practical lessons in the therapeutic uses of water to nurses and patients.

MASSAGE.

The history of massage has been traced through various stages of development to very early times. To-day this kind of treatment is prescribed by regular physicians more frequently than ever before. It is given by Dr. Kellogg at Battle Creek, with great acceptability, and at other sanatoria too numerous to mention.

OSTEOPATHY.

Osteopathy is a new and a western idea. This kind of treatment will not be adopted in Boston without investigation and discussion.

Osteopathy was first formulated by Andrew Taylor Still, M.D., in 1874. His own account of it gives us the initial point of view from which he looked at it. He claimed "that a natural flow of blood is health; that disease is the effect of local or general disturbance of the blood; that to excite the nerves causes the muscles to contract and compress the venous flow of blood to the heart; and that the bones could be used as levers to relieve pressure on nerves, veins and arteries." He conceived the idea that the human system is a machine, perfectly framed by its maker and that, if kept in a condition of proper adjustment, it is capable of surviving for a long time. He found that manipulation could be made, almost at will, in connection with the skeletal structure, with the result that all the organs could be stimulated to perform their normal functions. Out of this beginning there has been developed a system of manipulative therapy, aiming at rectifying all the abnormal structural and functional disorders of the system.

Massage has emphasized the mechanical method of general rubbing and kneading. Osteopathy attempts to specialize the mechanical principle in dealing with all kinds of curable diseases, acute as well as chronic, graduating pressure, tension, vibration, and all the mechanical forms of physical stimulation in their application to muscles, bones, blood vessels, nerves, and organs of the body so as to gain therapeutic effects. This is the technique of osteopathy.

The Still College of Osteopathy was established in Kirksville, Missouri, ten years ago. Now there are nine associated schools of this kind, containing seven hundred students. Already there are more than four thousand graduates, two-thirds of whom are men. The course of study in the best of these schools is for three years, of nine months each. In some of these schools, at least, the best text-books on anatomy, physiology, pathology and hygiene are used. These disciples are now supplied with thirty books on the principles and practice of osteopathy. They have ten monthly publications and have established seven sanatoria for the treatment of invalids by this method. I believe there is a growing demand for attention of this kind by persons who are suffering on account of overwork, sedentary habits, neurotic tendencies, and various chronic ailments.

ELECTRO-THERAPY.

The attention of the public, of late years, has been called to the uses of electrical instruments for the discovery of foreign metallic substances in the human body, for determining the exact nature of fractures, and of dislocations, also for the cure of cancers and diseases of the skin; for this reason the credulous patient is inclined to believe that by means of electricity good may be accomplished in his case after all other methods of treatment have failed; therefore, the general practitioner in medicine should understand, better than ever before, the therapeutic uses of the galvanic, faradic, and the static battery. The medical student should not only be taught the principles which determine the use of electricity, but when and how to apply the electrodes in a most skilful manner.

PSYCHO-THERAPY.

We live in a country and in a time of universal education. A liberal education is becoming more prevalent everywhere. We are a nation of readers. Daily papers are as numerous as the leaves on our shade trees; monthly magazines of various kinds are popular and abundant. Public libraries multiply. "Of making books there is no end."

Anatomy, physiology and hygiene are taught in the common schools. College-bred women, as well as men, work in lab-

oratories and use the microscope. We are all taught how to preserve health; how to possess a sound mind in a sound body. Everybody knows something about constipation, appendicitis, and tuberculosis.

Fifty years ago when I was a boy, I noticed that the "Graham-ites," the vegetarians (patients of Dr. Jackson, who had been treated in Danville, N. Y.), were all hypochondriacs. I here claim that educated people, who have a more or less technical knowledge of hygiene when they get sick, are in danger of becoming hypochondriacs. Intelligent people, who have failed in health, are more likely to become self-centered, and pessimistic, than are the illiterate and the shiftless. Again, the ambitious American citizen, who is leading a strenuous life, not infrequently becomes neurasthenic; if this physical and mental condition is not promptly relieved, or if it becomes profound, it is called "nervous prostration." Dr. Beard, of New York, first called the attention of the medical profession in this country, to the fact that this condition of the nervous system and of the mind is a positive disease and requires medical and psychic treatment.

Selfishness is denounced and the altruistic spirit is lauded to the skies. Tired people, discouraged people, unsuccessful people and people, who are suffering in body, or in mind, or in both body and mind, are asking themselves daily, all over this country, Is life worth living? Melancholia and suicide are conditions more frequently observed than ever before. Furthermore, another phase of invalidism, in which there is now a great variety of symptoms, which develops in individuals possessing a neuropathic tendency, is called hysteria. Thus we have on our hands for care and treatment, a large number of patients who are afflicted with functional diseases; these are kindred to each other, and known as psychoneuroses. We call them cases of neurasthenia, hypochondria, hysteria and melancholia.

The achievements of the up-to-date surgeon are glorious, but he can increase the confidence of his waiting patient, and will inspire in him more hope of recovery by dissipating erroneous notions from his mind, and by calling his attention, in a friendly manner, to the favorable indications in his case.

Nurses should be pretty. If not vain and conceited, the good-looking nurse is most acceptable to patients and, other qualities being equal, she controls them most perfectly. But all nurses are not pretty, all are not well-trained, all are not adapted to the cases in hand.

Should not the surgeon and the physician not only know how to do so, but incidentally embrace opportunities to teach the nurse how to soothe, and entertain, and secure the implicit confidence of the patient? All physicians should carry cheerfulness, and hope, and courage into the sick room. Their visits should be welcome and their influence prove beneficial. This, in general terms, is what I mean by psycho-therapy. To be more specific, the physician should undertake to control the mind of the patient. This kind of treatment is very important, when the case is psychopathic in kind. The successful city physician is a busy man; the time given to each patient is little. In critical cases a private nurse is put in the sick room; clinical records are accurately and fully made; the visiting physician depends more and more upon these records, and upon the skilful nurse.

I maintain that the surgeon and the physician should spend sufficient time in the sick room to discover conditions in the body and in the mind of the patient, which may not have been noticed by the nurse, and which cannot be described on paper. Should not the patient pin his faith to his physician, rather than to his nurse? In most kinds of business, success depends, very largely, upon confidence in the man with whom you are dealing. In the practice of medicine and surgery, should not all of us keep more carefully and persistently in mind the advantage of having the complete confidence of the patient, and nurse, and the friends of the patient?

But as I have already stated, on account of education and the fact that we earn our living with brains, rather than with muscles, psychopathic conditions and complications have become most puzzling factors in the practice of medicine. The proportion of patients who are afflicted with functional diseases, is increasing every year.

I will end this paper by declaring that psychopathic conditions should be met, and relieved, and cured by psychic methods.

DISCUSSION.

Dr. Casey Wood, Chicago:

I think Dr. Hill has taught us a great lesson and one which we do not learn until we approach that time called senility. I have been much interested in Dr. Hill's remarks, but where is all this crowding of medical students to end? We know the curriculum is overdone. There is little time for the work already laid out and the only thing I can suggest is that we go back to the old idea, that the preliminary education of the medical student should be extended beyond the time at present required.

Dr. Leartus Connor, Detroit:

It occurred to me to ask whether Dr. Hill had ever been to an osteopathic college. If he has been, how extensive a course he took; if he has not been, how much he has practised it? In short, does he know anything about it? I am frank to say that I do not. I suspect, gentlemen, that if we did as the osteopath—put our fingers down to those joints, rub them as he rubs them and knead them as he does and do it with the belief that it will relieve, we would probably do good.

Occasionally I have done something of the sort and always with satisfaction. In the history of medicine we know that for many years the average doctor passed by electricity, passed by the effect of hot and cold water-baths. He passed by the power of mind to influence mind, and because of this the other fellow came in and occupied the field. The foot and the finger are just as important parts as the appendix or the eye, but I do not know of any scientifically educated man taking care of somebody's corns. There is still considerable along all these lines for us to learn. I had credited Boston with an institution where any doctor could prescribe a definite bath of hot or cold water according to scientific methods, but I found such institution had been abandoned because it did not pay.

I have been laboring with some of my friends that they omit from the preparation of their text-books everything that they do not know—give us the wheat without the chaff—emphasizing—the known—so making it possible for all physicians to become practically familiar therewith.

Dr. Woods Hutchinson, Arrowhead, Cal.:

I think we are in danger of overdoing mental therapeutics. All recognize the influence of the mind over the body, but it is equally true that no amount of confidence in the doctor or nurse is going to save the patient with cancer of the stomach, Bright's disease or diabetes. Mental depression always has a physical basis. No matter how encouragingly the patient is talked to, if something is not done to correct the physical condition, which is the cause of

the mental depression, results will not be secured. The real reason that suggestion does so much is that two-thirds of the patients for whom we write prescriptions would get better anyhow if nothing was done.

Dr. Augustus P. Clarke, Cambridge:

The subject as presented by the reader is extremely interesting and furnishes several points on which considerable could be said.

Manual exercise by which students are trained in the proper use of instruments and in the various ways for making physical examination of patients has become within a comparatively recent period a branch of medical instruction deemed of much importance. The necessary efficiency for accomplishing such work can be gained only after more or less prolonged and continued practice. The view that great personal presence and a cheerful or engaging manner are the main essentials for a physician's successful achievement is now less entertained than formerly.

Tactus eruditus, or that sense of touch employed for the mode of diagnosing diseases, particularly of the abdominal organs, is an acquisition that the student of medicine should make every reasonable endeavor to gain. The failure to acquire such a qualification has all too often worked to the disadvantage of the patient and has not unfrequently necessitated resort to a useless exploratory incision. To illustrate one phase of this subject I might mention that some days since I was called in consultation to see a lady who was some sixty years of age. She had been under treatment by a physician who had been most pleasing in his manner and conversation. The patient had for some six weeks complained bitterly of a sense of pressure and other disturbances in the abdomino-pelvic organs. There was at the time of my visit no elevation of temperature, there was no organic disease of the heart. There was no tumor to be found by palpation; there was no vomiting and no serious urinary trouble. The bowels were said not to have been constipated but there had been on the contrary more or less fecal discharges but not of a diarrheal character. The patient had taken numerous sedatives and anti-spasmodics without apparently being afforded any very marked relief. The patient was beginning to feel that the end of her life was near. I very quickly ran over her symptoms, eliminating one trouble after another. A proper rectal examination revealed the presence of an impacted mass, and the patient was comparatively comfortable after its removal, although the cause of her suffering had not been suspected before. I merely remarked before I left the patient that she would undoubtedly have a good night's rest and would want in the morning a substantial breakfast.

Dr. Hill closes:

My reason for reading this paper is that I am brought into contact with many country practitioners in the state in which I live who do not, like the last speaker, see their patients at the time of their suffering. Too many of

them are prescribing laxatives without prescribing different living or nursing or treatment which would give permanent relief to the patients who are sedentary in their habits. In these days of labor-saving machines it seems to me that many of our patients do not get sufficient physical exercise so that they need some of these kinds of treatment which I have suggested. Fifty or 100 years ago when most people made their living by manual labor they did not need baths so much because they sweated more, and this was true in regard to massage. I think one reason that these other means of treatment are in demand and that many persons gain a livelihood by practising them is that these requirements are not met by the regular practitioner.

I have not had a course in an osteopathic school, although there is one in the city in which I live, but I meet very many osteopaths who are making as good salaries as some regular physicians, by giving this sort of treatment. If young physicians starting into practice in villages where there is little sickness and where there are no trained nurses, were able to instruct the relatives of patients and the patients themselves how to do certain things, it seems to me that they would pick up a great deal of business in the care of chronic cases which they fail to get now and which drift away to irregular physicians.

In answer to Dr. Connor I will say that I have not practised in my profession that which I have preached here to-day and am not an osteopath, yet my practice has been among neurotic patients to a very great extent. Where I fail to find a serious organic disease, it seemed to me that treatment along the lines given in sanitariums, should receive more attention in the home of the patient and by physicians in general.

OBSERVATIONS IN PASSING.

MATERIAL FOR A HISTORY OF THE MEDICAL PROFESSION.

The Bulletin inaugurates a new department in this number. In doing so we are led to quote from the *International Dictionary*: "History owes much of its best material to the 'memoirs' which have been from time to time produced, whose authors have undertaken to describe the interesting events which have fallen under their observation, and have thus thrown a side light of illustration upon the manner and customs of their times of which ordinary annals are quite devoid."

The United States has a heritage of worthy physicians; the trials and triumphs of their skill have been recorded and are accessible. Many of them had a personality as marked as that of Abernethy, and the knowledge of this is limited to the few who may gain it by oral tradition. That which is peculiar, and may be shown by Ana, often helps to know the man and to understand his life work.

In addition to these first magnitude stars, there are hosts of others who have shone in the medical heavens of our country. A faithful record of their experiences produces a picture of the general social conditions of the time and community not to be obtained in any other way. And the student of the history of the people cannot fail to find valuable material for his research.

This department will be called "After Consulting Hours," because the articles to be found in it are to be those of the Raconteur, when we have laid aside the cares of the day, and have met for a little diversion. It will be divided into two sections. The more connected reminiscence, and the collecting of illustrative bits revealing personal peculiarity, or mediciana. Articles for this department are solicited. While we prefer to publish the name of the contributor, that is not essential for their acceptance. In every instance, however, if the author does not wish his name to appear it must be known to the management.

It is fitting that this series should be opened by one, who in the days of his activity probably was personally acquainted with more physicians than any other individual in the country; and

whose professional life has been spent in Philadelphia when it justly could be called the medical center of the United States, no matter how hard it has been pressed in later years.

It is not promised that this department will appear regularly; that will depend upon the available material.

* * *

It is gratifying to the management to report that the demand for extra copies of the last two numbers of the Bulletin is reducing the supply to a very narrow margin. Indeed the editor will accept with thanks any donation of either the August or October number of the present year.

In this connection, attention is called to the policy of printing but a few copies above the number required and should any of our readers desire additional copies of any article, it were well to place an advance order. The effort is made to advertise the principal contents of the next number in the current number of the Bulletin, which permits one to order before printing.

* * *

The November number of *Watson's Magazine* announces the withdrawal of Mr. Watson from the editorial management of the journal that bears his name. Like many idealists, Mr. Watson did not fit his propaganda to present conditions and the machinery could not be kept adjusted. The management promises a holding "fast to Jeffersonian Democracy," and so, if it is to be taken literally, will live rather in the past, than strive for future ideals.

AFTER CONSULTING HOURS.

REMINISCENCE.

COMMENCING PRACTICE.

BY WILLIAM B. ATKINSON, A.M., M.D., of Philadelphia.

I.

The earlier years in the practice of medicine of the writer were spent in a location close to the Delaware river [Philadelphia]. I graduated in the early fifties, and thanks to my father who was

fearful lest I should become infected with the desire to go West, especially as California was then an attractive point for young men, my sign "Doctor ——" was placed on the shutter of my home, and stared me in the face on my arrival from the Musical Fund Hall where our commencements were then held. Under such circumstances, I felt it but a duty to make an effort to respond to this appeal. Perhaps this location was as good as I could have asked for. With the determination to do my best, I placed my slate at my front door and a sign indicating my office hours on the window, then I made every effort to find work.

One evening an old friend from the country had called, intending to spend the night with me. My bell rang and I petulantly remarked that is the way sure to be interrupted on such an occasion. My father at once replied: "Now do not be like the man who goes looking for work, but prays he shall not find any."

At first for want of other occupation, I would go to the college and listen to the lectures on practice, surgery and materia medica, especially to the clinics then occurring only on Wednesdays and Saturdays. Here I added much to my knowledge, and especially did these aid me in prescribing in an emergency.

My library was extremely limited so I embraced every opportunity to add to it by attending an auction house near by where often medical books, though of very old editions, were for sale. There were no libraries at hand save that of the College of Physicians and of the Pennsylvania Hospital, neither of which were open to me till later years. However, I punctually returned to my home for my office hours which were most pleasant for me by reason of the presence of my family [I was not then married. Each one of the family was earnestly waiting to receive a call. When I walked out for exercise, I took care to walk briskly that those who knew me might be impressed with the idea that I was going to see a patient.

There were the usual number of drug stores, in which the proprietor was ever ready to prescribe over the counter; in addition there were three much older physicians within one block. I was much surprised in a few months to find that one of the druggists was honoring me by employing some of my prescriptions.

At that time there were several factories in the small streets in the rear of my home, where a number of girls and boys were employed. One day a girl fainted and they called me to look after her. Seeing that the proprietor had a carriage waiting to convey her to her residence, I felt that I could do but little good and, not wishing to put her to expense, was about to leave when a cry arose from the employees: "Cant you give her some medicine?" After a very careful examination, I wrote a formula, waiting till it was obtained, gave her a dose, received a small fee from the superintendent, and left with the information that they would send for me if wanted. In my anxiety to keep up appearances, I called next day and was told she was at work.

In those days my appearance was not in my favor, being a few months short of 21 years, very boyish-looking, but emergencies would occur. One day a student called in for a chat [later he became one of the most prominent gynecologists of our city], a patient also entered with a finger which demanded lancing. With the utmost care I prepared myself, opened the abscess and evacuated a large quantity of pus. My friend suggested an additional cut as it appeared to need more vent for the pus. This was not done, the patient hurried away, but called next day, showed the finger much improved, paid me my fee, one gold dollar, then told me he "did not think *that* young fellow knew much, and was glad that I did not cut any more."

Occasionally some one from the poorer homes, perhaps neglected by the "Guardians' Physician" or the "Poor Doctor" as they were usually called, would send for me lest the patient might die without a doctor, compelling the action of the Crowner [Coroner]; in such instances was my opportunity to make a reputation. The family of course was of the poorest class, could pay not even a small fee, but I was determined to find work, so I paid great attention, calling daily, or oftener if needed, and was rewarded by finding my name was becoming known as a "foine docther." Some of the houses had a family in each room. This locality had originally been occupied by first-class families, especially of old Sea Captains who preferred to live near to the wharves, and many houses had solid mahogany doors, even carved mantel-

pieces, some of which I believe still exist. One house was noted for having a nice bath-room, a wonderful luxury in those days and it was quite an exciting occasion when one day I was called to a case in a family who were now occupying the bath-room. Of course, the only furniture was a bed placed upon the bath-tub, but no other luxuries as now known.

To preserve an appearance of dignity, I refused all cases of obstetrics, or night calls save in very important instances, sometimes obtaining a small fee. Obstetric cases would occur even among better people because the family physician was slow in coming, thus I began to have an increase in this part of my work where fees were paid promptly, and my reputation was becoming known as "a good doctor but very young."

I am almost tempted to record some instances, very amusing, especially to one fresh in the harness:

A woman had a baby quite ill with diarrhea. By diligent efforts and the careful obedience to my orders of the mother, the child began to mend. One day when I called, the little fellow was lying on his back with one leg up over the other. When I said "he is better." The mother replied, "true darlint, he shows it by his natheral ways; see how he is lying there wid his little legs cocked in the air." I well remember that this though paying me no fee brought me a great many cases, especially of children *becase* as the mother said, "the young docther is a knowledgable man, and is good for children anyway."

This appeared to be a common belief, "that children's cases were easy to cure and *anny* one could get them well if he had *anny sinse*."

In fact I soon was known as a children's doctor; in this connection, I may quote from my lectures at Old Jeff: "I urge you young gentlemen to make the diseases of children your special study as not only readily leading to a reputation, but demanding a more careful attention and study than any other part of your profession. I assure you that it is not so easy to be successful in such cases, but careful examination in each instance will make you better able to learn what is the special trouble, and what is equally important will show you how much can be done without

much medication." Too many students and physicians are really too lazy to take up the work incident to this branch. In my own life this led to greater benefit to myself among which I may mention my selection later as one of the faculty of two colleges to lecture on that branch.

By this determined plan of attending to everything that demanded aid, I soon found myself quite busy both in my office and after my hours were over in the houses of my neighborhood.

Up to the close of my work as a practitioner, after more than 53 years, I still had quite a number of those who had been attracted to me in my first year.

One thing for which I was well-known was my fearlessness of disease. During that first year a vessel from the fruit islands brought yellow fever to that district, causing about twenty deaths, and in all some one hundred cases, ranging from Spruce on the north to Catherine on the south and as far west as 7th street. Much to my surprise I found several physicians who announced their determination not to respond to any calls in that location. Among these was our own medical attendant who lived as far west as 11th Street.

I at once became anxious to see a case and not only responded to every call but asked the few physicians in that district on whom I called to give me the opportunity to see any cases known or supposed to be the fever. Although the endemic lasted for about six months, I did not see a case. So great was the fear that on one occasion a physician who had a call to the location asked me to go with him to see a child that he had been called to see. When we arrived in the rear of a small court about six feet wide, we were told by the mother that she had driven the girl to the outhouse. "She was afraid of the *fever*."

We found a girl of some eight years sitting in the outhouse with her apron over her head. She had cried herself to sleep. Examination showed no signs of fever, merely a headache, resulting from overfeeding. My friend ordered a purgative and gave the mother a severe scolding for her unnatural conduct. No further symptoms developed.

In the Sailors Home within two blocks of the wharf where the

infected vessel lay, there occurred a case of a sailor with a slight fever lasting but two days, yielding to mild purgatives and a febrifuge. One of my relatives one block from our home died of the disease, a severe attack; no others in the family were ill. In those days no methods were instituted like quarantine, etc., only burning tar barrels in the streets, especially at night, and insisting upon perfect cleanliness. One case attended by an irregular in my belief was scared to death by the announcement by him on his first visit, "this is yellow fever." She died on the third or fourth day. No others were sick there.

By this time I suddenly had an unexpected opportunity to obtain work. I was invited by three friends to join them and take charge of a district from the Delaware river to 6th Street and below South Street as far as I chose to go. We thus divided all the city below South Street from the Delaware to the Schuylkill river on the west. My district was the most likely to yield work of value to me. Occasionally my colleague on the west who was then a delicate man would break down and I would take his district with mine. I held this work for six years. While it did not yield much monetary value, it caused me to become well-known and soon I was able to decline much of my work unless a fee of moderate size was given.

In those days there was no competition to act as clinic clerks at the colleges as so well-known now; in fact, it was quite common for a young practitioner to quietly arrange with his nearest druggist to send him all patients who called at the store for advice, with the understanding that in turn the prescription was to be made up at said store, although even then it was regarded as dishonorable to divide the profit.

The average druggist did not do as I found in some instances, issue a circular to his neighboring physicians offering a dividend. At that time we had few druggists of foreign birth, while now that same location is crowded with foreigners as medicos, druggists, in fact it has become a foreign city demanding physicians who can speak all the dialects of Europe.

Early after my second year, I was proposed for membership in the County Medical Society, which at once brought me into contact

with the best men of the profession. My advice to every physician is to join his local society as soon as possible. This rubbing against the minds of his brother practitioners is sure to polish up his own ideas and bring out whatever of merit he may possess. This also brought me much additional work. Several members offered me the opportunity to attend to their business when ill or otherwise engaged. At one time on the occasion of a meeting of the American Medical Association no less than three quite prominent men left their practice in my hands, and as I had the use of the horses of one, I was enabled to visit a large round each day for several days. All this added to my reputation, and aided me in obtaining more work of my own. Again my acquaintance with these men enabled me to obtain their aid when I felt the need of a consultation. Before this I had often felt my loneliness when I encountered a case of unusual difficulty. However, in those days, it was by no means regarded by the average member of the profession as of any consequence to be a member of a medical society save of one of the little coteries of which there were quite a number. I remember that it was often very difficult to obtain enough members to elect new members, and several of us would scour the immediate vicinity of the place of meeting to drum up a quorum. In fact it was believed by many outsiders that we were a select crowd who opposed those not in with us. For years the membership did not exceed one hundred. (At present we have about 1200 in Philadelphia.) Perhaps we have gone to the other extreme, and in our anxiety to increase our membership have elected some who have not added to our reputation.

MEDICIANA.

One day just as the first call for troops for three months had been issued, a few of the prominent physicians of the city were assembled in a room of Jefferson Medical College. The talk turned on the condition of the country, when Professor Alfred Stille remarked "Oh! this will soon be over. These three months' men will settle it."

At once Professor Gross, the elder, replied "no, Stille, nor three years. You do not know the South. They are in deadly earnest.

They will fight till the last." We now see how true was his idea. Confederate officers with whom I was more than once thrown in contact in the South agreed with me, a full-blooded Northern man, that the affair would have been settled much sooner but that we were fighting our own flesh and blood.

The writer, after listening to the introductory address of Prof. Alfred Stille at the University, walked home with one of the most prominent members of the faculty. When we had gotten from the immediate vicinity, this gentleman asked: "Was not that the most elegant trash that you ever listened to?"

At a meeting of the County Medical Society the venerable Dr. D. Francis Condie, perhaps the earliest to edit a work on diseases of children in the U. S., was, in his usual didactic manner, discussing his treatment of croup. He positively insisted upon his never losing a case. As he was still talking, Dr. Robert P. Thomas left the room but soon returned with a book from the library of the College of Physicians in whose room we met. He next asked Dr. C. if his statement as to not losing a case was not subject to some modification. Dr. C. again very positively reiterated the statement. Then Dr. Thomas opened the book and read an account of certain cases which died in spite of this mode of treatment. Closing the book he said: "Mr. President, the book from which I have been reading is 'Condie on Diseases of Children: subject, Croup.'" You may imagine the sensation.

W. B. A.

WORTH REPEATING.

But we do find ourselves in sympathy with the educational plan of President Eliot.¹ We do not think that students proposing in the future to study medicine, should necessarily begin to study zoology and botany or acquire a skill in the use of a scalpel and microscope while in college, or that it is generally a good plan for them to do so. We believe, as has been before

¹ In his address at the dedication of the new medical buildings of Harvard.

urged in these pages, that all young men seeking an education should remain the same fields of classical and mathematical training, such as are found in an old-fashioned college or in a German gymnasium, until they reach the university where the study of medicine, and everything that pertains to it, should begin. While we would interpose no objection to any boy or girl studying botany or zoology in a preparatory school, we protest against the idea that any one but a doctor of medicine should be essentially concerned in the teaching of medicine, and that it is necessary to begin its study before reaching the university. We do not think with Dr. Eliot that the Harvard undergraduate college needs instructorships in biology and physics and organic chemistry, and we are not at all in sympathy with many of the present methods of preparing students for studying medicine which are of various kinds, in various places. We believe the century suffers from the intensity which sets a boy of sixteen to getting ready for studying medicine with chemical and biological studies when he ought to be enriching his mind with Virgil, Horace, Homer and Herodotus, and getting a working knowledge of the French and German languages. Biology, zoology and chemistry should be left until later on. In our Columbia University, a two years' course for the degree of B.A., is recommended to those who are to study medicine, while at Harvard three years with overtime work in vacations will do. While all fixity in the curriculum has been long since abandoned, optional studies are open to every student so that a young man is really in a university and not in a college, when he is an undergraduate. For the present state of confusion as to undergraduate instruction, a confusion which affects the study of medicine most unfavorably, the authorities of Harvard University are thought by many to be largely responsible.—*Editorial article in the "Post-Graduate," November, 1906.*

TELEPHONE ADVICE.

The use of the telephone by patients who wish to secure medical advice for which they do not expect to pay is the source of considerable annoyance to most practitioners. In order to put an end to all doubts as to the lawfulness of charging for telephone

consultations, a Viennese physician recently brought a case into court, in which a patient who had on several occasions, even in the night-time, asked for professional advice and had refused to pay a fee for the service. The judge decided that advice must be paid for whether given in the consulting-room, by letter or telephone, or at the bedside. It is the duty of a practitioner to decide whether the case is such that he may safely give instructions by telephone after he has seen the patient on a previous occasion. If physicians would render bills for telephone consultations at the same rate they charge for office consultations they would soon cease to be annoyed in this manner.—*Medical Age*, September 10, 1906.

AMONG OUR EXCHANGES.

PREPARATION FOR THE COURSE OF MEDICAL STUDY. BY CHARLES F. WHEELLOCK, LL.D., Chief of the Examination Division of the New York State Education Department. *New York State Jour. of Med.*, S., 1906.

The physician must be a broad-minded, trained man. Mere knowledge of the minute details of the so-called medical subject is not sufficient preparation. Training in scientific methods, the training that enables one to grasp a problem, and trace the effect of each condition upon the final result is of more importance than a knowledge of the mere facts of anatomy.

Not that a knowledge of facts is unnecessary—they are—but how often a physician of some years' standing confesses his inability to state elementary medical facts in a state examination. Unused facts will go, but the scientific method is ever needed.

The preparatory training should be planned to impart this fundamental knowledge, if studies that can bear directly upon medicine can be employed, well—but the method is of more importance than the matter.

The high school course should be built about a skeleton of English, classics and mathematics. He does not believe in electives in high school. Such a course may impart facts without training. Greek is of more value to the medical student than French or German. The Education Department now proposes to

issue a medical student certificate to one who will *pass our examination* in three years of English, in two years of mathematics (including algebra and geometry), in two years of Latin, one year of physics, one year of chemistry and one year of American history.

The best high school course leaves much to be desired as a preparation for medicine, but economic and time limitations prevent the taking the to-be-desired college course by many.

While it is thus impossible for many to take the ideal preparation, the four years of college training, is it possible to combine the college with the medical training? This is the burning subject in medical education to-day. The subject was discussed at the Regent's Convocation for 1904, and a committee was appointed including leading representatives of medical and of literary colleges, and their preliminary report is the last expression on this subject:

SUMMARY OF HOURS.

	Instruction.	Laboratory.
Anatomy.....	150	50
Biology		
Histology.....	75	40
Botany and zoology.....		
Bacteriology.....	75	40
Chemistry.....	150	50
Physics.....	100	40
Physiology.....	100	40
	650	260

Anatomy—The anatomy taught in the undergraduate college should include a thorough course in comparative anatomy. If this training is thorough it would seem possible not to introduce human anatomy beyond that which concerns the bones of the skeleton, joints, ligaments and the muscles as taught comparatively.

Histologic Technic and Microscopy—The work in the colleges in this subject is really beyond that given in the medical schools. The textbooks on embryology are satisfactory, and most of the courses in the colleges are beyond those given in the medical schools.

Botany and Zoology should also be included in the course in biology. *Materia medica* found in the curriculum of most medical schools can not be taught satisfactorily in college, but the student well grounded in botany can readily take up *materia medica* in the second year.

Bacteriology—In the college course, this should be taught more definitely than at present. In the medical schools disease-producing micro-organisms are studied, but it is not necessary that these should be used in college, as the principles involved in making culture media and growing micro-organisms in the laboratory, and the life history, can be demonstrated as well on the simple forms as on those producing disease, especially as this work is reviewed later in the curriculums of the medical schools. The end to be secured in the teaching of bacteriology in the college should be a thorough training in the technic and principles involved, which should include:

1. Instructions in the methods of making staining solutions and the preparation of the solutions in most common use in laboratory work.
2. The technic of making cover slips of the basic form of bacteria and the study of their morphological characteristics
3. The methods of cleaning and sterilizing glassware and nutrient media. The study of the effect of different temperatures on the growth of different bacteria, the method of making plate cultures, the counting, fishing and systematic study of colonies.
4. Systematic study of at least six organisms, including their cultural and staining characteristics, the chemical products formed, and their resistance to heat and chemicals. Also the bacteriological examinations of milk, air and water.

Chemistry—This subject should include general chemistry (organic and inorganic), analytic (qualitative and quantitative), and medical toxicology and urinalysis. From the medical point of view toxicology and urinalysis demand greater knowledge of physiology than the college student possesses, but the student thoroughly drilled in general and analytic chemistry will have no difficulty in taking up these subjects in the second medical year.

Physics—This subject should be taught very thoroughly in the college or high school course, as medical students need to be particularly conversant with light, heat, electricity and kindred branches.

Physiology—The physiology that should be taught in the college course will consist of elementary physiology, but it should be taught very definitely. Courses outlined in Moore's "Elementary Physiology" or Huxley's "Principles of Physiology" will be adequate.

The so-called circular course of many medical schools, in which half the subject is treated the first year and the remainder the following year, renders it impossible for a student to enter the second year well prepared in physiology. If the course of such medical schools can be reconstructed so that the first year in general physiology shall be an elementary course, leaving for the second year the consideration of human physiology in detail, the elementary course can readily be given in college.

If a college provides the facilities for the proper completion of a course as thus outlined it will be a positive advantage to medical

education to permit a man so trained to come up for his M.D. degree in three years.

THE POSSIBILITIES OF IMPROVEMENT IN THE HUMAN RACE BY CLOSER ASSOCIATION WITH THE MEDICAL PROFESSION. WILLIS B. MOORE, M.D., Kentville, N. S. *The Maritime Med. News*, September, 1906.

The author suggests the desirability of preventing disease in the individual by a closer and additional relation of the family physician. It is a modification, or better a development of the "annual fee" plan. The physician is to receive an annual sum and to assume the general oversight of the health of the members of the family, examining them often enough to be able to detect diseases in their incipency.

THE BITTER CRY OF THE RUINED DOCTOR. W. GORDON, of Exeter, England. Correspondence in *Brit. Med. Jour.*, October 6, 1906.

Sir—This bitter cry is likely to continue to go up so long as the "ruined doctor" looks for the chief cause of his "ruin" in every direction but the right one. It is true that we are still paying for the war, just as it is true that our national methods of taxation take the wealth from the worker to give it to the waster. These things, of course, effect the doctor seriously, but they are not his chief source of trouble. "Hospital abuse" (much exaggerated) is not new. Unqualified prescribing probably vexed Hippocrates. We must look elsewhere for the cause of this increasing evil. It is this:

While mortality and morbidity are continually decreasing, the overcrowding of the profession is continually increasing, because the requirements in general education (as compared with those of other callings) are continually being lowered, so as to keep up an excessive supply by cheapening production; moreover, from overcrowding has come underselling.

It may, indeed, be claimed that we may still regard our general education standard with pardonable pride, since we can boast an equality with the pharmaceutical chemist and the veterinary surgeon; and to the mind with democratic leanings the prospect of a future in which our culture will be that of the chimney-sweep and the dustman may be positively alluring. But I would commend the facts just mentioned to the utterer of the "bitter

cry." If he stops wailing in the market-place and gives his mind to the matter, much may be done; but, if not, he may rest assured that neither revival in trade nor recovery from the war will avert what he foresees. It is a question of arithmetic. I am, etc.

LITERATURE NOTES.

REVIEWS.

ON THE RELATIONS OF DISEASES OF THE SKIN TO INTERNAL DISORDERS WITH OBSERVATIONS ON DIET, HYGIENE AND GENERAL THERAPEUTICS. BY L. DUNCAN BULKLEY, A.M., M.D., Physician to the New York Skin and Cancer Hospital, Consulting Physician to the New York Hospital, Consulting Dermatologist to the Randall's Island Hospitals, to the Manhattan Eye and Ear Hospital, and to the Hospital for Ruptured and Crippled, Etc. New York and London: Rebman, Limited. October. pp. 192. Price, \$1.50.

The connection between diseases of special organs and the general health is not so often borne in mind by the "ologists" as it should be. Dr. Bulkley's lectures, which were delivered at the New York Skin and Cancer Hospital in March 1905, and are published in response to requests from his students and others, may be considered an admirable exception to the rule. He calls attention to the important influence which toxemias, dyscrasias, digestive disorders, respiratory disturbances, circulatory disorders, diseases of the blood, of the nerves and of the various organs, have upon the nutrition of the skin, and thus as an etiologic factor in many of its diseases. Not only in diagnosis but also in treatment are his views broad and comprehensive, and both general practitioners and specialists will find much to enlighten them in reading his well-written pages. Especially interesting to the general practitioner will be the manifold relations pointed out between internal disorders of various kinds and pruritus and eczema, while the chapter in which the relations between asthma and urticaria are discussed, is extremely suggestive.

SOLOMON SOLIS-COHEN.

SOMMEIL ELECTRIQUE. INHIBITION DES MOUVEMENTS VOLONTAIRES ET DE LA SENSIBILITÉ PAR DES COURANTS ELECTRIQUES DE BASSE TENSION ET A INTERRUPTIONS MODÉLÈMENT FRÉQUENTES. EPILEPSIE ELECTRIQUE ET ELECTROCUTION. DR. LOUISE G. ROBINOVITCH. Nantes, 1906.

This brochure is upon the action of an electric current from

storage batteries which was broken about 110 times per second. The current was of low tension and traversed the body of the animal without a previous trepanation. The cathode was applied to the head and the anode to the thigh of the animal. When the position of the electrodes was reversed, a deep sleep ensued but it was difficult to preserve the animal as the temperature was elevated and the respirations accelerated. The electric sleep can be kept up for eight hours and twenty minutes. In this sleep the pupils are not, as in epilepsy, dilated but contracted, the temperature falls, and the arterial tension and the skin reflexes are exaggerated. If instead of using a voltage capable of producing only an electric sleep the voltage is raised, then an attack of epilepsy is produced or an electrocution ensued. In death by the current used by the author there were no lesions found in the nervous system. In electrocutions by other currents, hemorrhages were found in the fourth ventricle and in other parts of the nervous centres.

ISAAC OTT.

SECOND REPORT OF THE WELLCOME RESEARCH LABORATORIES AT THE GORDON MEMORIAL COLLEGE, KHARTOUM. ANDREW BALFOUR, M.D., B.Sc., F.R.C.P., Edin., D.P.H., Camb. Director, Department of Education, Sudan Government, Khartoum, 1906. Cloth, pp. 255.

Before one has the opportunity to examine the contents of this report, he is forced to admire its mechanical make-up; the beauty of the letter press, the clearness of the half-tone cuts and the exquisite quality of the colored plates place it among the books usually produced for artistic effect. And that the material for all this was prepared on the banks of the Nile, south of Egypt in the heart of the Dark Continent!

The Wellcome Research Laboratories were founded:

- (a) To promote technical education.
- (b) To promote the study, bacteriologically and physiologically, of tropical disorders, especially the infective diseases of both man and beast peculiar to the Sudan, and to render assistance to the officers of health, and to the clinics of the civil and military hospitals.
- (c) To aid experimental investigations in poisoning cases by the detection and experimental determination of toxic agents, particularly to obscure potent substances employed by the natives.

(d) To carry out such chemical and bacteriological tests in connection with water, food stuffs, and health and sanitary matters as may be found desirable.

(e) To promote the study of disorders and pests which attack food and textile producing and other economic plant life in the Sudan.

(f) To undertake the testing and assaying of agricultural, mineral and other substances of practical interest in the industrial development of the Sudan.

And this report shows how admirably the purposes are carrying out.

Among some of the more important papers the following may be mentioned:

Mosquito Work in the Khartoum and the Anglo-Egyptian Sudan Generally.
Biting and Noxious Insects Other than Mosquitoes.

Some Blood-Sucking Diptera from the Anglo-Egyptian Sudan Collected during the Year 1905, with Description of New Species, by Ernest E. Austen.

Human and Animal Pests, by F. V. Theobald.

That the work has its "practical" side may be inferred from the following quotation:

Therefore, for something considerably under £100 per annum, Khartoum is kept practically free from malaria, and its inhabitants are secured, to a very great extent, from the persistent and annoying attention of these unfed pests, which, as a rule, add so much discomfort to life in the tropics.

In the report of the chemist, too, there is much information that is immediately available for the routine life of man. We understand that the money for the equipment and the running expenses of these laboratories is given by Mr. Wellcome, of England, on which fact the *British Medical Journal* comments: "It is extremely gratifying to find a wealthy Englishman expending some of his money on an object such as this, for it is by such institutions for scientific work and observations as this that humanity will benefit in the near future." And we, on this side of the Atlantic, are pleased to know that the Englishman so praised was imported from the Western Hemisphere.

CHARLES MCINTIRE.

NOTICES.

A COMPEND OF MATERIA MEDICA. Therapeutics and Prescription Writing with Especial Reference to the Physiological Action of Drugs. Based on the Eighth Revision of the U. S. Pharmacopoeia, Including also Many Unofficial Remedies by SAMUEL O. L. PORTER, M.D., M.R.C.P. Lond. Seventh Edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1906. Cloth, pp. 292. Price, \$1.00.

This one of the well-known Quiz-compendis issued by this

house, which are kept up to date by continued revision. A source of ill were the student to depend upon compend alone; a useful possession when properly used.

STATE OF NEW YORK, STATE COMMISSION ON LUNACY, SEVENTEENTH ANNUAL REPORT, October 1, 1904 to September 30, 1905.

This volume of 1144 pages contains much of interest and value to several classes of students, and should be consulted by the alienist, the sociologist and the economist. A critical review would extend beyond the space at command, less would not be fitting the report. One must be contented with quoting a few figures. In New York, including 903 insane criminals, there were 26,241 insane patients in the state hospitals on September 30, 1905, and 985 in the licensed private institutions—a net increase, for the year, of 558. \$5,545,810.28 were expended for all purposes on the state institution.

THE PHYSICIAN'S VISITING LIST (Lindsay and Blakiston's) FOR 1907. Fifty-sixth year of publication. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St. Price, \$1.00.

This old favorite is able still to lead the procession formed by its younger competitors, and will be found on the tables of many who will hold fast to the good after experimenting with novelties.

RHYTHMOTHERAPY, a Discussion of the Physiologic Basis and Therapeutic Potency of Mechano-Vital Vibration, to which is added a Dictionary of Diseases with Suggestions as to the Technic of Vibratory Therapeutics with Illustrations by SAMUEL S. WALLIAN, A.M., M.D., of New York. Chicago: The Ouellette Press. 1906. Cloth, pp. 210. Price, \$1.50 net. Postage, 10 cents.

Despite the somewhat forbidding approach to this volume, it is nevertheless worthy of attention—when an author confesses: "Somewhat heterogeneously thrown together, in the interrupted and uncertain intervals of a busy practice, this little brochure is diffidently commended and committed to the charitable indulgence of professional colleagues," etc. The feeling is to lay the work aside and bid the author stick to his practice, or to take time to do his work properly. Pressure of other duties is no

excuse for slovenly work, when it is a new book sent out for public favor.

But, as a circular, which accompanies the book for the information of the reviewer, says: "It is refreshing to find a volume devoted to a new or at least not universally accredited therapeutic measure that is not either boldly or covertly the mouthpiece of some commercial interest." The physician who wishes to know about new methods of every degree of merit (and every conscientious physician should so wish) will find this book to possess a value equal, at least, to the purchase price.

A COMPEND OF GENITO-URINARY DISEASES AND SYPHILIS, INCLUDING THEIR SURGERY AND TREATMENT. BY CHARLES S. HIRSCH, M.D., Assistant in the Genito-Urinary Surgical Department, Jefferson Medical College Hospital. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906. Cloth, pp. 35. Price, \$1.00.

This is a new volume in the "Blakiston's? Quiz-compends?" series. In the preface the author says:

The need of a book that epitomizes the mass of matter in the standard text-books was realized by the author in the course of his duties as quiz master.

To meet this has been his aim, and he hopes that the book will facilitate the student in mastering the important points in the diagnosis and treatment of genito-urinary surgery, venereal diseases and syphilis.

The author has striven to make more than a compend, as he knows that many practitioners will welcome a compact book that treats of these diseases tersely. He, therefore, has omitted unnecessary detail and the very rare affections.

And this describes the book very well. Those who associate unprofitable cram with the Quiz-compend may wish for another name to characterize the volume. It is a concise manual, and can find its way to the shelves of many a physician with profit to its owner.

MEMORANDA.

The *Literary Digest*, New York, Funk & Wagnalls Co., continues to be true to its name. It gives a view of the world's doings and thought, week by week, in a comprehensive and satisfactory manner.

Beginning with the new year, the "Parke, Davis & Co. journals" will be consolidated into a single journal with the title, *The Therapeutic Gazette, Incorporating Medicine and the Medical Age*. The present editors of the *Therapeutic Gazette*, Drs. Hobart A. Hare and Edward Martin, of Philadelphia, will edit the combined journals.

Although not on our exchange list the autumn number of the *Quarterly Journal of Inebriety* has reached us. On the cover page is found a pleasing portrait of our old friend, the late Dr. Henry Darwin Didama, of Syracuse, N. Y., and the pages, as we turn them over, disclose papers of interest and value, as "The Psychic Treatment of Inebriety and Its Relation to the So-called Cures," "Alcohol and Physical Training," "The Alcohol Cult." Would we had stopped in our search! In the department called *Notes and Comment*, on one page we find an account of the annual meeting of the American Association of Medical Journal Advertisers, with a purpose: "To assist in maintaining proper ethical standards and for the advancement of truth and honorable dealing." This commendable association makes the *Journal of Inebriety* its official organ, by what association of ideas, we dinna ken. On the opposite page, we read:

With the season for coughs and colds close at hand the following method of treatment will prove suggestive and valuable.

Have your patient bathe the feet in hot water before retiring and drink a pint of hot lemonade. Two — and — tablets taken with the lemonade will quiet the nerves, produce sleep and help break up the cold.

The dashes in our extract, in the original name a substance that has not been accepted, even "tentatively," by the Council on Pharmacy and Chemistry of the American Medical Association. Possibly, we speak with hesitation for it is not a problem of medical sociology, the older combination with the lemonade would be safer than the tablets, and probably just as fitting for a *Journal of Inebriety*.

ACKNOWLEDGMENTS.

[It is intended to acknowledge all publications received since the previous issue, that are not otherwise mentioned in this number. The present list, however, is for publications received from September 21 to November 20 inclusive.]

This notice will be considered a full return for the courtesy of sending us the publication. Additional notices and reviews will be made, depending upon the space available, and for the best interest of our readers as judged by the management. Publications treating of medico-social questions will be given precedence.

Bureau of the Census—Special Reports.

Mortality Statistics, 1900-1904. Washington, 1906, pp. 799.

Benevolent Institutions, 1904. Washington, 1905, pp. 335.

The Blind and the Deaf, 1900. Washington, 1906, pp. 264.

Compendium and Brief History of Taxation in Pennsylvania, arranged by W. P. Snyder, Auditor-General, Harrisburg, 1906, pp. 141.

Proceedings of the Connecticut State Medical Society, 1906, pp. 354.

INSTITUTIONS OF LEARNING.

Alabama, Southern University, catalog, 1905-6. *California*, Univ. of Southern California, year book, 1905-6. *Colorado*, Univ. of Colorado, Med. Bull., August. *Connecticut*, Trinity College, Bull. III, 1. *Delaware*, Delaware College, Bull. II, 4, III, 1. *District of Columbia*, Catholic University of America, general announcements, 1906-7; Announcements of the Faculty of Philosophy, 1905-6; Georgetown University, triennial graduate list 1906, general catalog 1905-6, circular of information 1906, School of Law announcement 1906-7, School of Medicine announcement 1906-7; George Washington University, Bull. V-3. *Florida*, John B. Stetson Univ., catalog, 1905-6; St. Leo College, catalog, 1905-6. *Georgia*, Atlanta Baptist Coll., catalog, 1905-6; Atlanta University, catalog, 1905-6; Morris Brown College, year book, 1905-6. *Illinois*, Knox Coll., catalog 1905-6, Bulletin 2-3; Lombard Coll., catalog, 1906-7; Northwestern Coll., catalog, 1905-6; Westfield Coll., Bull. II, 2. *Indiana*, Earlham Coll., catalog, 1905-6; Hanover Coll., catalog, 1905-6; Indiana Univ., catalog 1906, School of Law announcement, general circular; Moore's Hill Coll., semi-centennial catalog, 1856-1906. *Iowa*, Iowa Coll., Grinnell review Ap., 1906; Lennox Coll., catalog, 1905-6; Parsons Coll., catalog, 1905-6; Wartburg Kollege, katalog, 1905-6. *Missouri*, Barnes Med. Coll., Bull. V-2; Washington Univ., Bull. of Med. Dpt., V-1. *Nebraska*, Duane Coll., news letter, III, 2; Univ. of Nebraska, Bull. of the Coll. of Med., I, 4. *New York*, Hobart Coll., Bull. V, 1. *Rhode Island*, Brown Univ., Bull. III, 4. *Virginia*, Univ. of Virginia, Bull. VI, 1. *Canada*, Queen's Medical Quarterly.

HOSPITALS AND INSTITUTIONS.

Fifty-second Annual Report of the Board of Manager's of the Howard Hospital, Philadelphia; Twenty-first Annual Report of the Robert Packer Hospital, Sayre, Pa.

EXCHANGES.

The current numbers of the following journals have been received: *California*, State Jour. of Med., Pacific Med. Jour., Southern Calif. Practitioner. *Colorado*, Colorado Medicine, Colorado Med. Jour. *Connecticut*, Bull. of the State Board of Health, N. E. Med. Monthly. *District of Columbia*, Bull. of the Bureau of Labor, Public Health Reports. *Georgia*, State Board Jour. of Am. *Illinois*, Am. Jour. of Clin. Med., Bull. of the State Bd. of Health, Chicago Clinic, Chicago Health, Jour. Am. Med. Assoc. *Indiana*, Bull. of Charities and Corrections, Bull. of State Board of Health, Central States Med. Monitor. *Iowa*, Health Bulletin. *Kansas*, Jour. Kas. Med. Soc. *Massachusetts*, Annals of Gynecol. and Pediat., Archives of Phys. Therapy, Our Dumb Animals. *Michigan*, Bull. of Vital Statistics, Detroit Med. Jour., Emergency Hosp. Reports, Medical Age. *Minnesota*, St. Paul Med. Jour. *Missouri*, Interstate Med. Jour., Jour. Missouri State Med. Assoc., Kansas City Med. Jour., Med. Brief, St. Louis Courier of Med. *Nebraska*, Western Med. Rev. *New Jersey*, The Jour. of the Med. Soc. of the State of N. J. *New Mexico*, Jour. New Mexico Med. Assoc. *New York*, Albany Med. Annals, Am. Jour. of Surg., Brooklyn Med. Jour., Buffalo Med. Jour., Charities, Critic and Guide, Eclectic Rev., Internat. Jour. of Surg., Literary Digest, McCall's Mag., Med. Examiner and Practitioner, Med. Rev. of Reviews, Monthly Bull. N. Y. State Dep't. of Health, Municipal Jour. and Engineer, N. Y. Med. Jour., N. Y. State Jour. of Med., Post-graduate, Watson's Mag. *Ohio*, Cleveland Med. Jour., Columbus Med. Jour., Eclectic Med. Gleaner, Eclectic Med. Jour., Jour. of Comp. Neurology and Psychology, Lancet-Clinic. *Pennsylvania*, Alumni Register, American Med., Annals of Surgery, Jour. of the Assoc. of Military Surgeons, Med. Council, Med. Notes and Queries, Monthly Cyclopedic of Med., Therapeutic Gaz. *Rhode Island*, Providence Med. Jour. *Tennessee*, The Southern Practitioner. *Virginia*, Virginia Med. Semi-monthly. *Washington*, Northwest Med. *Wisconsin*, Ophthalmology, Wisconsin Med. Recorder. *Canada*, Le Bull. Med. de Quebec, Maritime Med. News. *England*, British Med. Jour.

REPRINTS.

Clinical Observations Concerning the Nasal Passages and the Relation They Bear to the Organs of Sight and Hearing, by Alice G. Bryant, Boston; (1) Aids to the Recognition of Disease, (2) Primary Malignant Endotracheal Tumor, (3) Indicanuria Complicating Typhoid Fever, (4) Pathology and Diagnosis of Myocardial Inflammations and Degenerations, by Judson Daland, Philadelphia; Vascular Tension in Chronic Illness, by Hobart A. Hare, Philadelphia; Impracticability of Interstate Reciprocity, by Edwin B. Harvey, Boston; The Value of Climatotherapy in Tuberculosis, by Guy Hinshelwood, Hot Springs, Va.; Dionin in Ophthalmic Practice, by James Hinshelwood; (1) Some Problems in the Diagnosis and Treatment of Puerperal Infection, (2) Pseudomyxoma Peritonii, by B. C. Hirst,

Philadelphia ; (1) *The Treatment of Simple Chronic Glaucoma by Miotics*, (2) *The Present Treatment of Squint*, (3) *Report of Two Cases of Congenital Anomalies of the Eyes*, by W. C. Posey, Philadelphia ; *Report of Five More Apparent Cures of Pulmonary Consumption*, by John F. Russell, New York.

MISCELLANEOUS.

Publications of the Census Bureau: Bulletin, No. 13, *A Discussion of Age Statistics* ; No. 14, *Proportions of the Sexes in the United States* ; No. 15, *A Discussion of the Vital Statistics of the Twelfth Census* ; No. 22, *Proportion of Children in the United States* ; No. 23, *Census Statistics of Teachers* ; *Proceedings of the American Philosophical Society*, No. 183, *United States Geological Survey ; Water Supply and Irrigation Papers*, No. 160, 162 ; *Practical Disinfection—Circular*, Illinois State Board of Health, Lenses published by Bausch and Lomb Optical Co., Rochester, N. Y.

Dr. Casey A. Wood, President of the American Academy of Medicine, announces his appointment of the additional members of council as follows :

Dr. Henry W. Cattell, Philadelphia.

Dr. William Elmer, Trenton.

Dr. Henry B. Favill, Chicago.

Dr. Helen C. Putnam, Providence.

Dr. W. Blair Stewart, Atlantic City.

These with the officers and ex-presidents compose the Council of the Academy.

Index to Vol. VII.

Academic value of the first degree, report of the committee to tabulate.....	333, 546
Acknowledgments.....	595, 705, 782
Advantages or disadvantages of co-education, the. William Thayer Smith, Hanover, N. H.....	657
After consulting hours.....	763
Altruism in the medical profession (president's address). Winfield S. Hall, Chicago.....	229
American Academy of Medicine—constitution, 527; hand-book, 475; list of members, 479; transactions, 30th annual meeting, Chicago, 1905, 252; transactions 31st annual meeting, Boston, 1906.....	557
American Academy of Medicine, the future of (editorial article).....	65
American colleges, report of the committee to tabulate the value of the first degree in	333, 546
Among our exchanges.....	583, 702, 772
Analysis of specification in laws relating to the teaching of physiology and hygiene in public schools.....	32
Atkinson, William B., Philadelphia. Commencing practice.....	763
Benedict, A. L., Buffalo. Senility.....	735
Boston, transactions of the meeting at, 1906.....	557
Boston meeting, the (editorial article).....	577
Brown, Samuel Horton, Philadelphia. Eczema. Reviewed by L. Duncan Bulkley, New York	692
Bug-a-boo, a (editorial article).	471
Bulkley, L. Duncan, New York. On the dangerous influences of overtaxing the girl's mind, particularly at the age of puberty, 673; On the relations of diseases of the skin to internal disorders. Reviewed by Solomon Solis-Cohen, 776; review of Samuel Horton Brown's Eczema, 692; the influence of the menstrual function on certain diseases of the skin. Reviewed by Henry P. Newman.....	700
By-laws.....	529
Ceremonials and festa in the recreation of larger groups of individuals. Bayard Holmes, Chicago	286
Certificate of membership, text of.....	532
Chicago, transactions of the meeting at, 1905	252
Child, the training of the mentally and morally defective. Maximilian P. E. Groszmann, Plainfield, N. J.....	633
Children, the duty of the family physician in regard to the proper mental and physical development of, under his care. Dudley A. Sargent, Cambridge, Mass.....	623

Clarke, Augustus P., Cambridge, Mass. The dangerous influences of overtaxing the girl's mind, particularly at puberty.....	663
Coeducation. G. Stanley Hall, Worcester, Mass.....	653
Coeducation, the advantages or disadvantages of. William Thayer Smith, Hanover, N. H.....	657
Cohen, Solomon-Solis, Philadelphia. Review of, on the relation of diseases of the skin to internal disorders. L. Duncan Bulkley, New York.....	776
College course, what can be accomplished by a.....	334
Commencing practice. William B. Atkinson, Philadelphia.....	763
Committee, reports of—on laws regulating the practice of medicine, 73, 146, 237; on teaching hygiene in public schools, 1, 411; to tabulate the academic value of the first degree.....	333, 546
Common school text-books, list of, on physiology and hygiene.....	40
Community, the influences of recreation on the individual and the (symposium).....	269
Constitution.....	527
Council on medical education of the American Medical Association, re- view of proceedings of the second annual conference. Charles Mc- Intire, Easton, Pa.....	695
Cowan, George, Danville, Ky. The organization of the medical profes- sion (leading article).....	701
Crime, heredity and environment as causes of delinquency and, (presi- dent's address). Donly C. Hawley, Burlington, Vt.....	583
Dangerous influences of overtaxing the girl's mind, particularly at the age of puberty, on the. L. Duncan Bulkley, New York, 673; Augustus P. Clarke, Cambridge, Mass.....	663
Defective child, the training of the mentally and morally. Maximilian P. E. Groszmann, Plainfield, N. J.....	633
Delinquency, heredity and environment as causes of, and crime (presi- dent's address). Donly C. Hawley, Burlington, Vt.....	533
Department of medicine in the life of the people. J. Cheston Morris, Philadelphia.....	572
Domestic science courses.....	446
"Domestic science" studies of the present teaching of hygiene through, and "nature study".....	414
Duty of the family physician in regard to the proper mental and phys- ical development of the children under his care from infancy to adolescence. Dudley A. Sargent, Cambridge, Mass.....	623
Eczema, a consideration of its cause, diagnosis and treatment. Samuel Horton Brown, reviewed by L. Duncan Bulkley, New York.....	692
Education, the relation of recreation to. R. K. Row, Berwyn, Ill.....	390
Environment, heredity and, as causes of delinquency and crime (presi- dent's address). Donly C. Hawley, Burlington, Vt.....	533

Examinations, results of the, for state licensure to practice medicine in 1904. Charles McIntire, Easton, Pa	73
Family physician, the duty of the, in regard to the proper mental and physical development of the children under his care from infancy to adolescence. Dudley A. Sargent, Cambridge, Mass.....	623
Fellows, alphabetical list of, 480; geographical list of.....	510
Festa, ceremonials and, in the recreation of larger groups of individuals. Bayard Holmes, Chicago	286
Friendship of Dr. Nathan Smith and Dr. Lyman Spalding, the. James A. Spalding, Portland, Me.....	714
Future of the American Academy of Medicine, the (editorial article)....	65
Girl's mind, on the dangerous influences of overtaxing the, particularly at the age of puberty. L. Duncan Bulkley, New York, 673; Augustus P. Clarke, Cambridge, Mass.....	663
Gould, George M., Philadelphia. A historic parallel (leading article)..	597
Groszmann, Maximilian P. E., Plainfield, N. J. The training of the mentally and morally defective child.....	633
Hall, G. Stanley, Worcester, Mass. Coeducation.....	653
Hall, Winfield S., Chicago. Altruism in the medical profession (president's address).....	229
Hand-book, 1905-1906.....	475
Harrison, B. D., Detroit. Medical reciprocity	212
Harvard medical buildings, the new (leading article).....	711
Hawley, Donly C., Burlington, Vt. Heredity and environment as causes of delinquency and crime (president's address), 533; Recreation as a sociologic factor.....	295
Henry Phipps Institute for the study and prevention of tuberculosis, review of second annual report. S. A. Knopf, New York	693
Herdman, William James, Ann Arbor, Mich. Recreation in its effects upon the nervous system.....	277
Heredity and environment as causes of delinquency and crime (president's address). Donly C. Hawley, Burlington Vt.....	533
Hill, Gershon H., Des Moines, Ia. Manual training for medical students and instruction in the principles of psycho-therapy.....	753
Historic parallel, a (leading article). George M. Gould, Philadelphia..	597
History, material for a, of the medical profession (editorial article).....	762
Holmes, Bayard, Chicago. Ceremonials and festa in the recreation of larger groups of individuals.....	286
Honorary members, list of.....	479
How may the medical and teaching professions cooperate to improve the moral, mental and physical condition of the young. S. A. Knopf, New York.....	604
Hygiene, a list of text-books on	40
Hygiene, analysis of specifications in laws relating to the teaching of physiology and, in the public schools, 1903.....	32

Hygiene, a study of common school text-books in physiology and, 1883-1904.....	14
Hygiene, a study of the laws in the United States on teaching physiology and, in the public schools.....	2
Hygiene, report of the committee on teaching, in the public schools...I,	411
"In all things charity" (leading article). Charles McIntire, Easton, Pa.....	600
Influence of the Menstrual Function on Certain Diseases of the Skin. L. Duncan Bulkley, New York, reviewed by Henry P. Newman, Chicago.....	700
Influences of recreation upon the individual and the community (symposium).....	269
In prospect (editorial article).....	574
Knopf, S. A., New York. How may the medical and teaching professions cooperate to improve the moral, mental and physical condition of the young, 604; review of second annual report of the Henry Phipps Institute for the study and prevention of tuberculosis..	693
Laws, a study of the, in the United States on teaching physiology and hygiene in the public schools.....	2
Laws regulating the practice of medicine. Charles McIntire, Easton, Pa.....	146, 237
Laws relating to the teaching of physiology and hygiene in public schools in 1903, analysis of the specifications in.....	32
Leading articles.....	597, 709
Literature notes.....	70, 141, 226, 265, 332, 473, 586, 692, 776
McCaskey, George W., Fort Wayne, Ind. The physiology of recreation	269
McIntire, Charles, Easton, Pa. "In all things charity" (leading article), 600; report of the committee on the laws regulating the practice of medicine, 237; review of the proceedings of the second annual conference of the council on medical education of the American Medical Association, 695; review of, "Should advanced standing as regards medical residence be given to graduates of literary colleges, or should four years of medical residence be invariably required? Augustus Ravogli, 698; state licensure for the practice of medicine. Part I. Examination results, 73; Part II. State regulations to practise medicine.....	146
Manual training for medical students and instruction in the principles of psycho-therapy. Gershom H. Hill, Des Moines, Ia.....	753
Material for a history of the medical profession (editorial article).....	762
Matters educational (editorial article).....	469
Medical and teaching professions, how may the, cooperate to improve the moral, mental and physical condition of the child. S. A. Knopf, New York	604
Medical features of the Papyrus Ebers. Carl H. von Klein, Chicago.....	309

Medical profession, altruism in the (president's address). Winfield S. Hall, Chicago.....	229
Medical profession, material for a history of (editorial article).....	762
Medical profession, the organization of the (leading article). George Cowan, Danville, Ky.....	709
Medical students, manual training for, and instruction in the principles of psycho-therapy. Gershom H. Hill, Des Moines, Ia.....	753
Medicina.....	769
Medicine, state examinations for the practise of. Charles McIntire, Easton, Pa.....	73
Medicine, state regulations to practice, 1904. Charles McIntire, Easton, Pa.....	146
Medical reciprocity. B. D. Harrison, Detroit.....	212
Morris, J. Cheston, Philadelphia. Department of medicine in the life of the people.....	572
"Nature study" courses.....	430
"Nature study," studies of the present teaching of hygiene through "domestic science" and.....	414
Nervous system, recreation in its effects upon. William James Herdman, Ann Arbor, Mich.....	277
Newman, Henry P., Chicago. Review of the influence of the menstrual function on certain diseases of the skin. L. Duncan Bulkley, New York.....	700
Observations in passing.....	65, 140, 223, 264, 328, 468, 574, 690, 762
On the dangerous influences of overtaxing the girl's mind, particularly at the age of puberty. L. Duncan Bulkley, New York, 673; Augustus P. Clarke, Cambridge, Mass.....	663
On the relations of diseases of the skin to internal disorders. L. Duncan Bulkley, reviewed by Solomon Solis-Cohen, Philadelphia.....	673
Organization of the medical profession, the (leading article). George Cowan, Danville, Ky.....	709
Ott, Isaac, Easton, Pa. Review of sommeil electrique, Louise Robino-vitch.....	776
Papyrus Ebers, the medical features of. Carl H. von Klein, Chicago...	309
Physician, the duty of the family, in regard to the proper medical and physical development of the children under their care from infancy to adolescence. Dudley A. Sargent, Cambridge, Mass.....	623
Physician, the essential character to make a.....	337
Physician, the mental discipline to prepare a.....	339
Physician, the required knowledge for a.....	342
Physician, what are the elements, which, when compounded, make a...	333
Physiology, analysis of specifications in laws relating to the teaching of, and hygiene.....	32
Physiology, list of text-books on.....	40

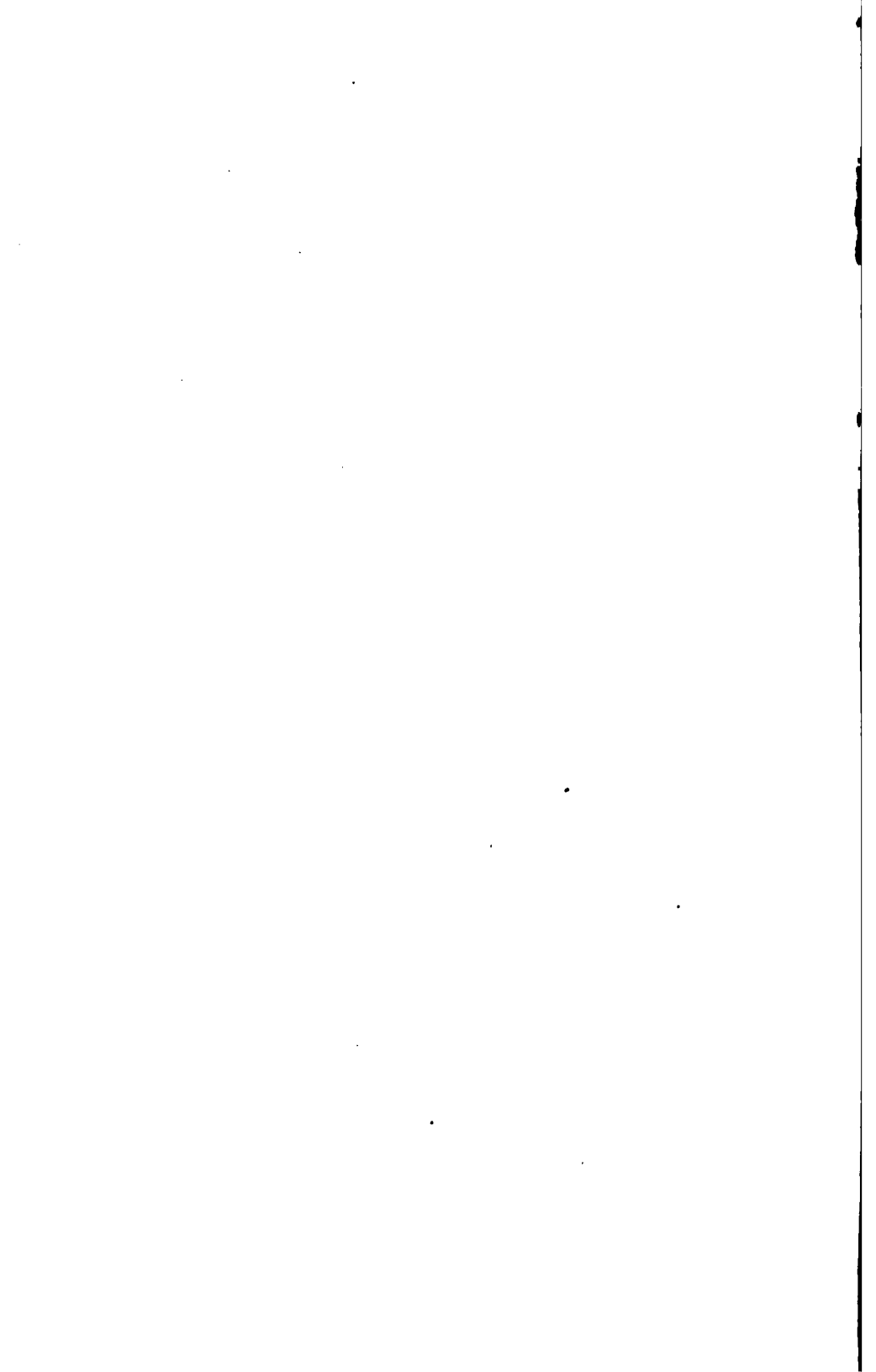
Physiology, a study of the common school text-books in, and hygiene, 1883 to 1904.....	14
Physiology, a study of the laws in the United States on teaching, and hygiene in the public schools.....	2
Physiology of recreation, the. George W. McCaskey, Fort Wayne, Ind..	269
Places and times of meetings, list of.....	477
Practice of medicine—report of the committee on the laws regulating, 73, 146, 237; state licensure for the, 73; examination results, 1904, 73; state regulations.....	146
Present required qualifications and some scholastic irregularities growing therefrom. Report of the committee to tabulate the comparative value of the first degree.....	546
Presidents, list of.....	478
Psycho-therapy, manual training for medical students, and instruction in, the principles of. Gershom H. Hill, Des Moines, Ia.....	753
Puberty, on the dangerous influences of overtaking the girl's mind, particularly at the age of. L. Duncan Bulkley, New York, 673; Augustus P. Clarke, Cambridge, Mass.....	663
Public schools, analysis of specifications in laws relating to the teaching of physiology and hygiene in, 1903.....	32
Public schools, a study of common school text-books in physiology and hygiene, 1883 to 1904.....	14
Public schools, a study of the laws in the United States on teaching physiology and hygiene in the.....	2
Public schools, list of text-books in physiology and hygiene.....	40
Public schools, report of the committee on the teaching of hygiene in the	I, 411
Putnam, Helen C., Providence, R. I. Report of the committee on teaching hygiene in the public schools.....	I, 411
Ravogli, Augustus, Cincinnati. Should advanced standing as regards medical residence be given to graduates of literary colleges, or should four years of medical residence be invariably required? reviewed by Charles McIntire, Easton, Pa.....	698
Reciprocity, medical. B. D. Harrison, Detroit.....	212
Recreation as a sociologic factor. Donly C. Hawley, Burlington, Vt....	295
Recreation, ceremonials and festa in the, of larger groups of individuals. Bayard Holmes, Chicago.....	286
Recreation in its effects on the nervous system. William James Herdman, Ann Arbor, Mich.....	277
Recreation, the influence of, upon the individual and the community (symposium).....	269
Recreation, the physiology of. George W. McCaskey, Fort Wayne, Ind	269
Recreation, the relation of, to education. R. K. Row, Berwyn, Ill.....	290
Relation of recreation to education, the. R. K. Row, Berwyn, Ill.....	290

Reports of committees—on the laws regulating the practice of medicine, 73, 146, 237; on the teaching of hygiene in the public schools, 1, 411; to tabulate the relative value of the first degree.....	333, 546
Robinovitch, Louise, New York. <i>Sommeil Electrique</i> , reviewed by Isaac Ott, Easton, Pa.....	776
Row, R. K., Berwyn, Ill. The relation of recreation to education.....	390
Sanitary regulation of the school room with reference to vision, the. Casey A. Wood, Chicago.....	642
Sargent, Dudley A., Cambridge, Mass. The duty of the family physician in regard to the proper mental and physical development of the children under his care from infancy to adolescence.....	623
School room, the sanitary regulation of, with reference to vision. Casey A. Wood, Chicago.....	642
School, see public school.	
Senility. A. L. Benedict, Buffalo.....	735
Should advanced standing as regards medical residence be given to graduates of literary colleges, or should four years of medical residence be invariably required? Augustus Ravogli, Cincinnati, reviewed by Charles McIntire, Easton, Pa.....	698
Smith, Dr. Nathan, the friendship of, and Dr. Lyman Spalding. James A. Spalding, Portland, Me.....	714
Smith, William Thayer, Hanover, N. H. The advantages or disadvantages of coeducation.....	657
Sociologic factor, recreation as a. Donly C. Hawley, Burlington, Vt....	295
<i>Sommeil electrique</i> . Louise G. Robinovitch, New York, reviewed by Isaac Ott, Easton, Pa.....	776
Spalding, Dr. Lyman, the friendship of Dr. Nathan Smith, and. James A. Spalding, Portland, Me.....	714
Spalding, James A., Portland, Me. The friendship of Dr. Nathan Smith and Dr. Lyman Spalding.....	714
State licensure for the practice of medicine. Charles McIntire, Easton, Pa.....	73
State regulations to practise medicine. Charles McIntire, Easton, Pa....	146
Study of the laws in the United States on teaching physiology and hygiene in the public schools, a.....	2
Study of common school text-books in physiology and hygiene, 1883 to 1904, a.....	14
Teaching professions, how may the medical and, cooperate to improve the mental, moral and physical condition of the young? S. A. Knopf, New York.....	604
Teaching hygiene in the public schools, report of the committee on...I, 411	
Text-books, list of common school, on physiology and hygiene.....	40
Text-books, list of "endorsed".....	57
Training of the mentally and morally defective child, the. Maximilian P. E. Groezmann, Plainfield, N. J.....	633

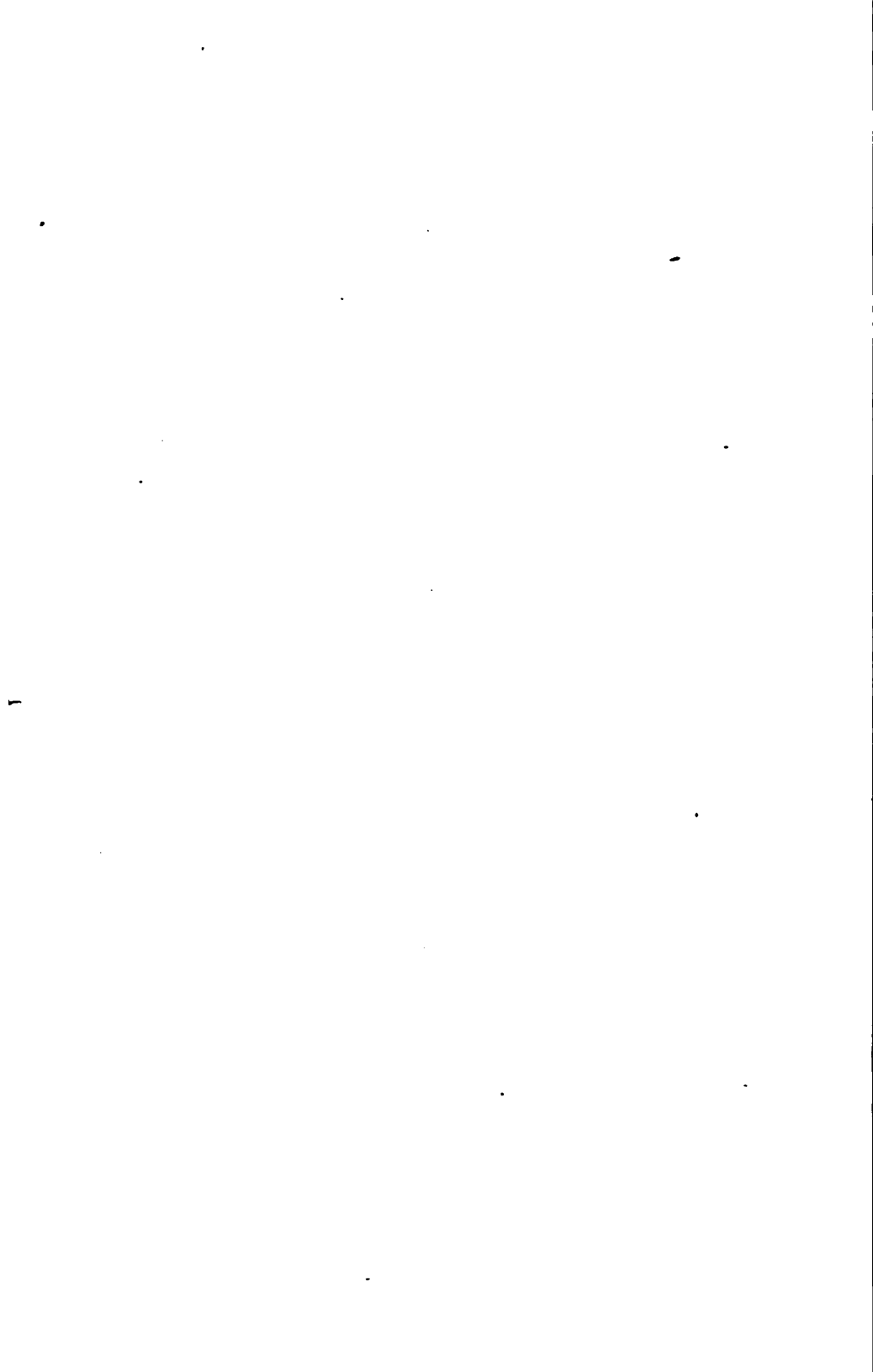
Transactions—30th annual meeting, Chicago, 1905, 252; 31st annual meeting, Boston, 1906.....	557
Vision, the sanitary regulation of the school room with reference to. Casey A. Wood, Chicago.....	642
von Klein, Carl H., Chicago. The medical features of the Papyrus Ebers.....	309
Wellcome research laboratories at the Gordon Memorial College, Khartoum, review of second report. Charles McIntire, Raston, Pa.....	777
Why is it? A conundrum. (Editorial article).....	328
Wood, Casey A., Chicago. The sanitary regulation of the school room with reference to vision.....	642
Worth repeating.....	578, 770
Young, how may the medical and teaching professions cooperate to improve the moral, mental and physical condition of the? S. A. Knopf, New York.....	604

LIST OF CONTRIBUTORS TO VOLUME VII.

William B. Atkinson	Philadelphia.
A. L. Benedict	Buffalo.
I. Duncan Bulkley	New York.
Augustus P. Clarke	Cambridge, Mass.
Solomon Solis-Cohen	Philadelphia.
George Cowan	Danville, Ky.
George M. Gould	Philadelphia.
Maximilian P. E. Groesmann	Plainfield, N. J.
G. Stanley Hall	Worcester, Mass.
Winfield S. Hall	Chicago.
B. D. Harrison	Detroit.
Donly C. Hawley	Burlington, Vt.
William James Herdman	Ann Arbor, Mich.
Gershom H. Hill	Des Moines, Ia.
Bayard Holmes	Chicago.
S. A. Knopf	New York.
George W. McCaskey	Fort Wayne, Ind.
Charles McIntire	Easton, Pa.
J. Cheston Morris	Philadelphia.
Henry P. Newman	Chicago.
Isaac Ott	Easton, Pa.
Helen C. Putnam	Providence.
R. K. Row	Berwyn, Ill.
Dudley A. Sargent	Cambridge, Mass.
William Thayer Smith	Hanover, N. H.
James A. Spalding	Portland, Me.
Carl H. von Klein	Chicago.
Casey A. Wood	Chicago.



1601324



1902 324

